UK MET OFFICE
GLOBAL DATA MONITORING REPORT

July 2005

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1. Introduction

As the WMO-appointed lead centre for monitoring surface marine data, the U.K. Meteorological Office produces monthly statistics on the quality of these observations received at RSMC Exeter. This report includes this information along with statistics for most other types of data. The figures and tables contained herein are presented according to the agreed standards for the exchange of monitoring results.

The report is based on data received at the UK Meteorological Office Headquarters, Exeter in time for inclusion into the appropriate analysis (the current cut-off time is approximately 7.2 hours after each analysis time). The evaluation of data quality is based on comparison with the appropriate 6-hour global model forecast (background) field, although to provide background values valid at the observation time for non-main hour data, time-interpolation of the T+3, T+6 and T+9 forecasts is used; and for sea surface temperature the background field is the analysis from the previous day. Generally, the background field is of high quality except in data sparse areas, tropical regions and areas close to steep orography where care should be taken in interpreting the statistics shown.

Comments or queries on the report are welcome and should be addressed to:-

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2 Global Data Monitoring Statistics

Ships, Fixed buoys, Platforms and Drifting buoys observations

TABLES 1and 2 contain lists of the stations which are considered to have returned suspect observations of pressure, windspeed, wind direction or sea surface temperature, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 1 and 2 show 10 degree lat/long box average numbers of SHIP/SYNOP and DRIFTER observations received per day throughout the month at Exeter and assimilated into model runs. All data are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

Synop Observations

Table 3 contains a list of stations which are considered to have returned suspect observations of Pressure during the month. The criteria for quality control are given in the header page. The reporting practice of each station is included in the list of statistics.

At the UK Met. Office, we monitor SYNOP pressure after it has been interpolated to our Global NWP Model's surface height. For most synoptic stations (about 75%), the surface pressure (at the model surface) is calculated from the reported station-level pressure, or, if this is not available, the height of a standard pressure-level (e.g. 850 hPa or 700 hPa). If neither of these are available, or if the reported station-level pressure is deemed unreliable, the reported mean sea-level pressure is used (about 25% of SYNOPs).

Aircraft observations

Tables 4A (300-150 hPa) and 4B (1000-301 hPa) contain lists of statistics calculated from data received from all airline carriers.

Figures 3A (300-150 hPa) and 3B (1000-301 hPa) show 10 degree lat/long box average numbers of aircraft reports in AIREP/AMDAR code (including AIREP, ACAR, AMDAR, ASDAR and ADS) received per day throughout the month at Exeter and assimilated into model runs. Observations with a vector wind difference (compared with the model background field) of >60 m s^{-1} have been excluded. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

Figures 4A-7A (300-150 hPa) and 4B-7B (1000-301 hPa) show wind statistics for AIREP/ASDAR in AIREP/AMDAR code (including AIREP, ACAR, AMDAR, ASDAR and ADS). Observations with a vector wind difference > 60 m s^{-1} have been excluded. Statistics have not been calculated for 10 degree lat/long boxes containing <31 observations.

Figure	Parameter
4	Mean wind vectors
5	Mean observation - background wind vector
6	Mean observation-background speed (m s^{-1})
7	RMS observation-background vector (m s^{-1})

Radiosonde Observations

TABLES 5-7 contain lists of the stations which are considered to have returned suspect observations of geopotential height, vector wind or wind direction, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 8 and 9 show 10 degree lat/long box average numbers of TEMP 500 hPa GEOPOTENTIAL HEIGHT and TEMP/PILOT 300 hPa WIND observations received per day throughout the month at Exeter and assimilated into model runs. Data from all hours are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

APPENDIX I shows details of the gross error limits used in TABLES 5 and 6 and the weights used in the RMS values in TABLE 5.

Satellite Observations

Figures 10-24 show satellite wind statistics for all geostationary satellites. All plots other than **AVAILABILITY** show average data where there are > 10 observations in a 10 degree lat/long box.

Figure	Parameter Plotted	Layer (hPa)
10	Availability/average daily number	701-1000
11	Vector mean wind (observed)	701-1000
12	Observation-background vector wind difference	701-1000
13	Mean observation-background speed differences	701-1000
14	RMS observation-background vector difference	701-1000
15	Availability/average daily number	401-700
16	Vector mean wind (observed)	401-700
17	Observation-background vector wind difference	401-700
18	Mean observation-background speed differences	401-700
19	RMS observation-background vector difference	401-700
20	Availability/average daily number	101-400
21	Vector mean wind (observed)	101-400
22	Observation-background vector wind difference	101-400
23	Mean observation-background speed differences	101-400
24	RMS observation-background vector difference	101-400

Figures 25-39 show sounding statistics from the polar orbitting satellite NOAA-15. Figure 25 shows the mean daily number of ATOVS soundings, and figures 26-39 show mean and standard deviation observation-background differences for brightness temperature, for selected channels.

Figure		Weighting function peak (hPa)
26	Mean	Surface (HIRS8)
27	SD	Surface (HIRS8)
28	Mean	700 (HIRS15)
29	SD	700 (HIRS15)
30	Mean	500-700 (HIRS11)
31	SD	500-700 (HIRS11)
32	Mean	400 (HIRS4)
33	SD	400 (HIRS4)
34	Mean	700 (AMSUA5)
35	SD	700 (AMSUA5)
36	Mean	300 (AMSUA7)
37	SD	300 (AMSUA7)
38	Mean	100 (AMSUA9)
39	RMS	100 (AMSUA9)

Figures 40-54 show sounding statistics from the polar orbitting satellite NOAA-16. Figure 40 shows the mean daily number of ATOVS soundings, and figures 41-54 show mean and standard deviation observation-background differences for brightness temperature, for selected channels.

Figure		Weighting function peak (hPa)
41	Mean	Surface (HIRS8)
42	SD	Surface (HIRS8)
43	Mean	700 (HIRS15)
44	SD	700 (HIRS15)
45	Mean	500-700 (HIRS11)
46	SD	500-700 (HIRS11)
47	Mean	400 (HIRS4)
48	SD	400 (HIRS4)
49	Mean	700 (AMSUA5)
50	SD	700 (AMSUA5)
51	Mean	300 (AMSUA7)
52	SD	300 (AMSUA7)
53	Mean	100 (AMSUA9)
54	RMS	100 (AMSUA9)

Figures 55-69 show sounding statistics from the polar orbitting satellite NOAA-17. Figure 55 shows the mean daily number of ATOVS soundings, and figures 56-69 show mean and standard deviation observation-background differences for brightness temperature for selected channels.

Figure		Weighting function peak (hPa)
56	Mean	Surface (HIRS8)
57	SD	Surface (HIRS8)
58	Mean	700 (HIRS15)
59	SD	700 (HIRS15)
60	Mean	500-700 (HIRS11)
61	SD	500-700 (HIRS11)
62	Mean	400 (HIRS4)
63	SD	400 (HIRS4)
64	Mean	700 (AMSUA5)
65	SD	700 (AMSUA5)
66	Mean	300 (AMSUA7)
67	SD	300 (AMSUA7)
68	Mean	100 (AMSUA9)
69	RMS	100 (AMSUA9)

N.B. All satellite sounding data is bias-corrected (and thinned) before being assimilated in the UKMO NWP model.

3 Composite Observing Systems for the North Atlantic (COSNA)

This section shows statistics for upper air (radiosonde and aircraft) and surface (drifter) data for the North Atlantic area for data received at Exeter during the month.

TABLE 8 shows quality statistics for **Mean Sea-level Pressure, Windspeed and Wind Direction** received at Exeter in DRIFTER code during the month for the area 10°N - 80°N, 85°W - 0°W.

TABLE 9 shows quality statistics for **Temperature and Vector Wind** received at Exeter from aircraft during the month for the area 40°N - 70°N, 60°W - 0°W.

Table 10 - 13 show quality statistics **(Geopotential Height and Windspeed at 100 and 500 hPa)** for all TEMPSHIPS in the area bounded by 0°N - 90°N, 100°W - 40°E and selected TEMP stations within the same area.

Revisions

1. May 95 Monitoring statistics for NOAA-11 removed. Figures 25-27 now show data for NOAA-12
2. May 95 Notes giving details of observations included in wind direction statistics clarified and corrected.
3. August 95 Monitoring statistics for NOAA-14 added with figures 28-30.
4. February 96 Monitoring statistics for GOES-7 have been replaced by statistics for GOES-8 and GOES-9.
5. April 96. 500 km and 120 km SATEMs replaced by 120 km resolution temperature profiles produced locally from the radiances disseminated by NESDIS.
6. February 97 Monitoring statistics for Meteosat 5 have been replaced by statistics for Meteosat 6.
7. Sept 97 Monitoring statistics for NOAA-12 removed. Figures 25-27 now show data for NOAA-11
8. January 1998. Increase in resolution of UKMO global forecast model.
9. April 1998. GOES winds ceased on 2nd March 1998, and were replaced with GOES high resolution winds from 15th.
10. June 1998. Monitoring statistics for Meteosat-6 were replaced by monitoring statistics for Meteosat-7, from 3rd June.
11. June 1998. Corrections in our processing of radiosonde data resulted in a decrease in the number of 500hPa geopotential heights in Figure 8 of about 230 per 24 hours (compared with previous reports), and a small increase in the number of 300hPa winds in Figure 9.
12. July 1998. Meteosat-5 began transmitting winds from 2nd July, at 63 degrees East (over the Indian ocean), and this data is included in the statistics.
13. July 1998. GOES-9 (at 135W) was replaced mid-month by GOES-10 (initially at 105W, moving towards 135W).
14. February 1999. Problems with NOAA-11, and TOVS data ceased to be assimilated from 26 February.
15. March 1999. UKMO introduced 3-D VAR assimilation system on 29 March, and also began assimilating ATOVS data from NOAA-15.
16. May 1999. Included statistics for ATOVS sounding data from NOAA-15.
17. September 1999. Included statistics for high resolution visible winds from Meteosat-5 and Meteosat-7.
18. October 1999. The 3-D VAR assimilation system was upgraded on 19 October, including improvements in the assimilation of ATOVS radiances, use of SSM/I surface wind speed, an improvement in the calculation of surface pressure for SYNOPs, and thinning and revision of observation errors of aircraft data.
19. November 1999. High resolution visible winds from Meteosat-5 and Meteosat-7 removed until used operationally.
20. April 2000. Aireps in Table 4 and Figures 3-7 split into ranges 300-150 hPa (A) and 1000-301 hPa (B).
21. September 2000. Corrected an error affecting the mean positions of a minority of buoys in Table 2.
22. November 2000. An error in the production of Table 6 was corrected. Previously, some sondes with suspect vector winds were being missed.
23. April 2001. Included statistics for ATOVS sounding data from NOAA-16.
24. May 2001. Included statistics for sea surface temperatures from marine surface observations.
25. December 2002. Included statistics for ATOVS sounding data from NOAA-17.
26. December 2002. Meteosat-7 and Meteosat-5 SATOB winds replaced by higher resolution BUFR-coded winds.
27. November 2003. Included temperature and relative humidity statistics for ships, fixed buoys and platforms in Table 1.
28. November 2003. NOAA 17 statistics no longer available due to malfunction of the AMSU-A instrument.

TABLE 1

MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - SHIPS, FIXED BUOYS AND PLATFORMS
MONITORING CENTRE: EXETER
MONTH: July 2005

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for ships, fixed buoys and platforms.

Standard of comparison :Background field from UKMO global model.

Observation times :All hours

Elements monitored
:Mean sea level pressure (hPa).
:Wind speed ($m\ s^{-1}$).
:Wind direction (Degrees).
:Air temperature (Degrees C).
:Relative Humidity (%).
:Sea surface temperature (Degrees).

Parameters monitored

:NOBS :Number of observations received excluding duplicates.

:PGE :Percentage of observations with gross errors.

:%REJ :Percentage of observations flagged excluding those with gross errors.

:SD :SD of difference of observations from background values excluding those with gross errors.

:BIAS :Mean difference of observations from background values excluding those with gross errors.
N.B. a positive bias indicates the wind observation is veered to the background.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT
:15 hPa (pressure)
:25 $m\ s^{-1}$ (vector wind)
:15 degrees (air temperature)
:10 degrees (sea surface temperature)

SELECTION CRITERIA :NOBS ≥ 20 , and one or more of the following:

1.|bias|	≥ 4 hPa	(pressure),
	≥ 5 $m\ s^{-1}$	(wind speed),
	≥ 30 degrees	(direction).
	≥ 3 degrees	(sea surface temperature).
	≥ 4 degrees	(air temperature)
	≥ 15%	(relative humidity)
2.SD	≥ 6 hPa	(pressure),
	≥ 80 degrees	(direction).
	≥ 5 degrees	(sea surface temperature).
	≥ 6 degrees	(air temperature)
	≥ 25%	(relative humidity)
3.PGE	≥ 25	

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 $m\ s^{-1}$

IDENTIFIER	ELEM	NOBS	PGE	%REJ	SD	BIAS	RMS
A8CB7	P	28	0	100	0.9	-4.1	4.2
A8FA6	P	36	0	28	1.0	4.7	4.8
A8FJ8	P	58	0	100	1.9	-4.5	4.9
DCFG2	P	20	0	45	1.1	4.5	4.6
DEAZ	P	28	0	0	1.2	4.6	4.7
DGHX	P	34	0	3	1.1	4.7	4.8
DPJC	P	41	0	100	3.1	6.3	7.0
D3EXQ9D	P	32	0	72	0.9	-4.2	4.3
HQTEST	P	403	0	0	0.5	-12.1	12.1
JPPO	P	29	0	0	0.7	4.0	4.0
KF003	P	28	0	86	1.4	-5.5	5.7
KS049	P	232	0	0	0.9	-4.2	4.3
MTDM5	P	28	0	86	1.8	4.8	5.2
UCJB	P	21	0	0	1.2	-5.5	5.6
UCJL	P	27	0	93	6.7	-1.3	6.8
VTXL	P	37	3	100	1.4	6.6	6.7
VVGG	P	22	0	68	1.1	7.1	7.2
VVKS	P	33	0	52	4.2	5.2	6.7
V2AC9	P	45	0	60	2.4	-5.2	5.7
V2AJ8	P	23	0	61	0.8	4.3	4.4
V2GR	P	30	0	0	0.8	4.9	4.9
V7EB7	P	57	0	98	0.5	4.3	4.4
WDB3834	P	64	3	56	1.9	4.2	4.6
WDCJ	P	58	0	64	0.9	4.4	4.5
WWU8	P	21	43	48	2.2	-0.1	2.2
3EXQ9	P	51	0	76	1.4	-4.1	4.4
3FLS8	P	31	0	55	3.0	-4.3	5.2

IDENTIFIER	ELEM	NOBS	PGE	%REJ	SD	BIAS	RMS
A8EG8	SPEED	31	0	19	4.4	5.9	7.3
ELVP2	SPEED	44	0	100	5.4	13.6	14.7
ELXT8	SPEED	45	0	33	4.1	7.3	8.4
JPPO	SPEED	27	4	100	4.6	7.2	8.5
KRGB	SPEED	584	3	65	5.3	5.7	7.7
PBFC	SPEED	33	0	100	3.8	5.3	6.5
PJBL	SPEED	30	0	10	4.9	5.1	7.1
VRUR7	SPEED	47	0	13	5.6	5.5	7.9
VWSZ	SPEED	43	0	9	4.7	6.1	7.7
ZIPR7	SPEED	74	1	27	7.7	5.9	9.7
9MBQ6	SPEED	49	0	57	4.5	6.2	7.6
9MCM4	SPEED	64	5	63	5.7	7.8	9.6
9MTE	SPEED	39	0	95	4.5	8.7	9.8

IDENTIFIER	ELEM	NOBS	PGE	%REJ	SD	BIAS	RMS
ELXT8	DIRN.	24	0	0	54.4	46.8	71.8
KS044	DIRN.	55	0	0	51.0	-71.1	87.5
LAJV4	DIRN.	87	5	0	77.5	53.0	93.9
LAZV5	DIRN.	24	0	0	131.8	-11.7	132.4
PJJL	DIRN.	31	0	0	34.2	-32.8	47.4
VVFI	DIRN.	21	0	0	57.0	-43.8	71.9
23168	DIRN.	51	0	0	49.3	67.2	83.4
32322	DIRN.	34	0	0	12.8	-64.9	66.1
52080	DIRN.	54	0	0	34.7	79.8	87.0

IDENTIFIER	ELEM	NOBS	PGE	%REJ	SD	BIAS	RMS
AVOSTEST	T	124	0	100	2.4	4.8	5.4
KS044	T	108	95	100	11.6	0.3	11.6
KUU619	T	25	4	100	2.5	8.3	8.7
OWDD	T	93	0	100	3.7	4.3	5.6

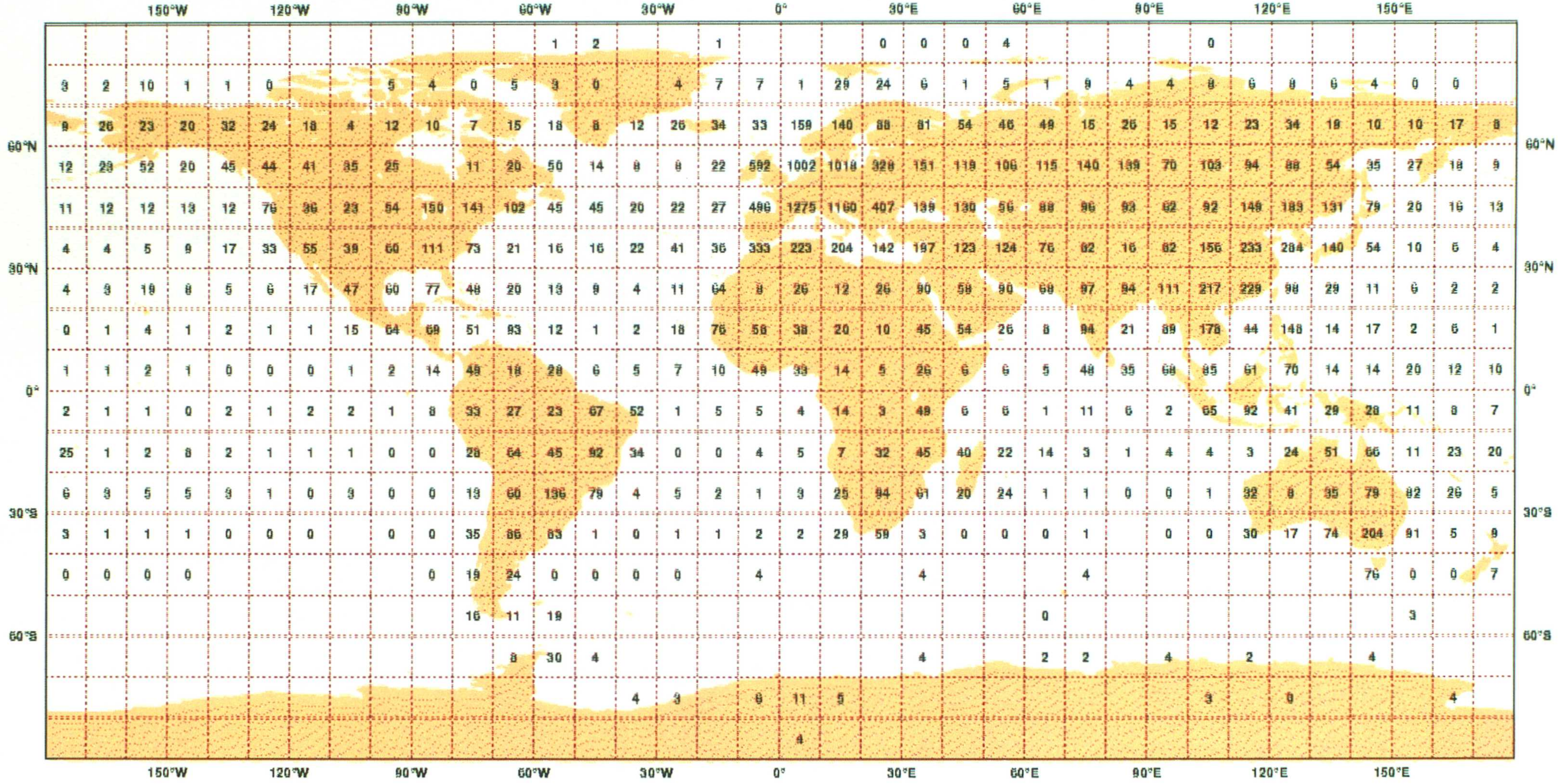
UCJJ	T	32	0	100	2.9	5.9	6.5
UCTP	T	103	3	100	3.1	8.2	8.8
UDDD	T	39	0	100	4.8	4.6	6.6
WCW9126	T	129	29	100	2.0	11.6	11.8
WDA3588	T	53	0	100	2.5	4.4	5.0
WDB6493	T	123	5	100	4.6	8.1	9.3
WWU8	T	21	29	100	1.3	12.4	12.5
WXJ63	T	120	16	100	3.3	9.8	10.3
44034	T	616	0	100	1.4	-4.1	4.3
45141	T	361	21	100	1.8	12.2	12.3
45150	T	722	4	100	3.2	8.7	9.3
46027	T	242	0	100	2.6	-4.2	4.9
46053	T	242	0	100	4.0	-5.8	7.1
46054	T	219	0	100	2.6	-4.7	5.4
46081	T	722	2	100	1.6	10.5	10.6
46088	T	477	4	100	3.9	-5.2	6.5
46091	T	202	7	100	4.3	-6.3	7.7
46092	T	241	2	100	4.0	-6.0	7.2
46181	T	725	0	100	1.5	4.8	5.1

IDENTIFIER	ELEM	NOBS	PGE	%REJ	SD	BIAS	RMS
AVOSTEST	RH	124	0	100	6.9	-20.5	21.7
FNAT	RH	41	0	100	3.7	18.2	18.6
HOMF	RH	30	0	100	5.4	-20.0	20.7
HOQM	RH	22	0	100	13.9	-15.2	20.6
HQTEST	RH	379	0	100	11.5	-16.2	19.9
OUEW	RH	87	0	100	14.4	-15.0	20.8
VLSF	RH	31	0	100	10.8	18.2	21.2
VRYS8	RH	23	0	100	8.6	15.7	17.9
ZCBV6	RH	55	0	100	8.4	15.0	17.2
46054	RH	123	0	100	8.7	22.8	24.4
46087	RH	480	0	100	12.3	16.2	20.4
46088	RH	462	0	100	19.9	24.4	31.5

IDENTIFIER	ELEM	NOBS	PGE	%REJ	SD	BIAS	RMS
A8BZ6	SST	79	0	58	2.0	-3.3	3.8
CGCC	SST	180	10	104	2.3	5.7	6.2
CTFB	SST	22	5	86	2.0	-3.5	4.0
C6RJ6	SST	20	5	100	0.5	-3.1	3.1
DIDY	SST	21	5	100	1.3	-3.7	3.9
ELSM9	SST	85	0	53	2.7	-4.1	4.9
KHRC	SST	20	0	100	0.7	-5.6	5.6
KRGB	SST	831	26	54	3.3	-1.7	3.7
KRHX	SST	74	3	62	2.3	-4.0	4.6
KS049	SST	172	0	112	2.4	-4.4	5.0
KUU619	SST	26	85	100	1.0	7.3	7.4
LF3F	SST	58	100	100			
MGRX2	SST	21	0	48	2.6	-3.7	4.5
OXQP2	SST	51	33	63	1.9	-4.2	4.6
PHCQ	SST	24	0	29	1.6	3.4	3.7
S6IW	SST	27	0	100	0.8	-6.4	6.4
UFJC	SST	34	3	26	2.4	-3.1	3.9
UGGA	SST	35	17	100	0.9	-5.9	5.9
VCTV	SST	21	0	57	2.3	-4.8	5.3
VC6750	SST	143	45	176	2.0	5.3	5.7
V2AC6	SST	22	0	100	1.3	3.4	3.7
WDCJ	SST	58	0	100	2.5	3.0	3.9
WGJF	SST	22	5	100	3.1	-5.4	6.2
WMCV	SST	33	0	67	1.2	-3.0	3.3
WSRH	SST	20	0	100	0.9	-3.6	3.7
ZCBE7	SST	20	20	100	1.1	7.5	7.6

44034	SST	613	0	63	1.1	-3.4	3.6
45141	SST	372	100	100			
45145	SST	678	100	100			
45150	SST	716	67	100	1.0	6.7	6.7
45151	SST	693	0	100	1.2	3.3	3.6
46015	SST	238	0	53	1.5	-3.0	3.4
46212	SST	476	0	62	0.9	-3.3	3.4
9HCH7	SST	56	0	100	0.8	4.1	4.1

Figure 1. SHIP/SYNOP mean daily count. JULY 2005
All hours
Global average number of observations in 24 hours = 21335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1 1 2 1 0 0 0 1 2 14 49 18 28 6 5 7 10 49 33 14 5 26 6 6 5 48 35 69 85 61 70 14 14 20 12 10
2 1 1 0 2 1 2 2 1 8 33 27 23 67 52 1 5 5 4 14 3 49 6 6 1 11 6 2 65 92 41 29 28 11 8 7
25 1 2 8 2 1 1 1 0 0 28 64 45 92 34 0 0 4 5 7 32 45 40 22 14 3 1 4 4 3 24 51 66 11 23 20
6 3 5 5 3 1 0 3 0 0 13 60 136 79 4 5 2 1 3 25 94 61 20 24 1 1 0 0 1 92 8 35 79 82 26 5
3 1 1 1 0 0 0 0 0 35 86 83 1 0 1 1 2 2 29 59 3 0 0 0 1 0 0 30 17 74 204 91 5 9
0 0 0 0 0 19 24 0 0 0 0 4 4 4 76 0 0 7
16 11 19 0 3
8 30 4 4 2 2 4 2 4
4 3 8 11 5 3 8 4
4

TABLE 2

MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - DRIFTING BUOYS
MONITORING CENTRE: EXETER
MONTH: July 2005

Monitoring procedures

Period		:One calendar month.	
Data monitored		:Reports from each unique identifier for drifting buoys.	
Standard of comparison		:Background field from UKMO global model.	
Position		:Average latitude and longitude for period.	
Observation times		: All hours	
Elements monitored		:Mean sea level pressure (hPa). :Wind speed (m s^{-1}). :Wind direction (degrees). :Sea surface temperature (degrees).	
Parameters monitored	:NOBS	:Number of observations received excluding duplicates.	
	:PGE	:Percentage of observations with gross errors.	
	:%REJ	: Percentage of observations flagged excluding those with gross errors	
	:SD	:SD of difference of observations from background values excluding those with gross errors.	
	:BIAS	:Mean difference of observations from background values excluding those with gross errors. **N.B. a positive bias indicates the wind observation is veered to the background.**	
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors.	
GROSS ERROR LIMIT	:15 hPa	(pressure)	
	:25 m s^{-1}	(vector wind)	
	:10 degrees	(sea surface temperature)	
SELECTION CRITERIA :	NOBS	≥ 20 , and one or more of the following:	
	1.|bias|	≥ 4 hPa	(pressure),
		≥ 5 m s^{-1}	(wind speed),
		≥ 30 degrees	(direction).
		≥ 3 degrees	(sea surface temperature).
	2.SD	≥ 6 hPa	(pressure),
		≥ 80 degrees	(direction).
		≥ 5 degrees	(sea surface temperature).
	3.PGE	≥ 25.	

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 m s^{-1}

IDENTIFIER	LAT.	LONG.	ELEM	NOBS	PGE	%REJ	SD	BIAS	RMS
17905	-56.0	68.2	P	718	31	86	7.1	-1.0	7.2
21946	37.9	148.4	P	113	33	64	5.3	-4.9	7.2
21948	44.8	164.7	P	110	100	100			
25522	84.3	71.7	P	211	100	100			
25569	81.7	-62.7	P	37	100	100			
25571	82.8	-56.1	P	40	100	100			
25573	85.0	151.8	P	25	0	100	6.4	-3.1	7.1
48536	81.1	-103.3	P	39	85	100	8.3	-8.0	11.6
55934	-57.9	-157.7	P	1112	56	89	7.6	3.1	8.2
61557	41.1	29.1	P	110	1	86	3.6	-6.4	7.4
71628	-48.0	30.2	P	471	26	61	6.6	1.3	6.8

IDENTIFIER	LAT.	LONG.	ELEM	NOBS	PGE	%REJ	SD	BIAS	RMS
41643	21.2	-68.6	DIRN.	394	0	0	23.2	39.6	45.9

IDENTIFIER	LAT.	LONG.	ELEM	NOBS	PGE	%REJ	SD	BIAS	RMS
15502	-16.6	-10.1	SST	566	0	100	0.2	-3.6	3.6
15504	-14.8	-13.9	SST	597	0	100	0.2	-3.7	3.7
15510	-12.4	-18.1	SST	610	0	100	0.2	-3.6	3.6
17559	-35.3	-9.0	SST	644	100	100			
22625	18.6	121.1	SST	73	0	100	1.5	-5.7	5.9
31914	-40.1	-53.0	SST	209	0	100	0.7	4.9	5.0
32538	-4.4	-125.5	SST	584	0	100	0.2	-3.8	3.8
32620	-5.4	-137.4	SST	608	0	100	0.1	-3.9	3.9
32820	6.7	-77.5	SST	20	0	90	1.0	-3.8	3.9
41912	32.3	-66.6	SST	797	0	100	0.9	-3.9	4.0
43538	6.6	-93.5	SST	129	0	74	0.9	-3.3	3.4
43581	29.8	-112.8	SST	370	0	100	0.5	3.5	3.5
44509	43.7	-48.0	SST	268	36	100	2.3	2.6	3.5
46972	18.4	129.8	SST	332	0	100	0.4	5.1	5.1
51743	-0.6	-156.0	SST	599	0	100	0.2	-4.3	4.3
51747	6.7	-145.2	SST	562	0	100	0.3	-4.2	4.2
51748	-3.8	-162.1	SST	604	0	100	0.2	-4.3	4.3
51751	4.5	-155.5	SST	613	0	100	0.2	-4.0	4.0
51752	-7.0	-159.3	SST	607	0	100	0.1	-4.2	4.2
62514	65.1	-37.0	SST	235	0	62	2.8	4.0	4.9

Figure 2. DRIFTER mean daily count. JULY 2005
All hours
Global average number of observations in 24 hours = 23144

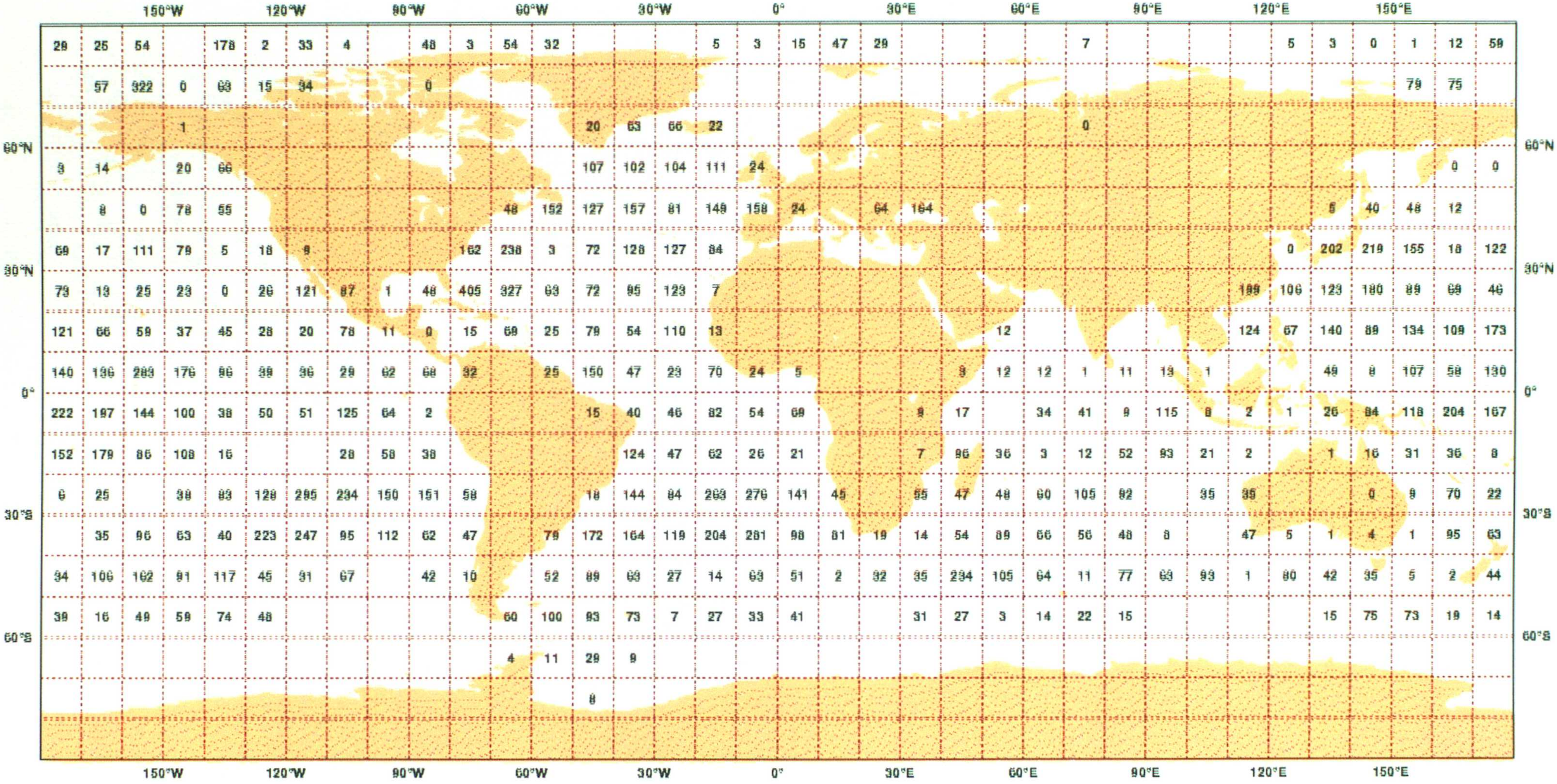

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
29 25 54 178 2 33 4 48 3 54 32 5 3 15 47 29 7 5 3 0 1 12 59
57 322 0 63 15 34 0 79 75
1 20 63 66 22 0
3 14 20 66 107 102 104 111 24 0 0
8 0 78 55 48 152 127 157 81 149 158 24 64 164 5 40 48 12
69 17 111 79 5 18 9 162 238 3 72 128 127 84 0 202 219 155 18 122
73 13 25 23 0 26 121 87 1 48 405 327 63 72 95 123 7 189 106 123 180 89 69 46
121 66 59 37 45 28 20 78 11 0 15 69 25 79 54 110 13 12 124 67 140 89 134 109 173
140 196 283 176 96 39 36 29 62 68 32 25 150 47 23 70 24 5 9 12 12 1 11 13 1 49 8 107 58 130
222 197 144 100 38 50 51 125 64 2 15 40 46 82 54 69 9 17 34 41 9 115 8 2 1 26 84 118 204 167
152 179 86 108 16 28 58 38 124 47 62 26 21 7 96 36 3 12 52 93 21 2 1 16 31 36 8
6 25 38 83 128 285 234 150 151 58 18 144 84 263 276 141 45 55 47 48 60 105 92 35 35 0 9 70 22
35 96 63 40 223 247 95 112 62 47 79 172 164 119 204 281 98 81 19 14 54 89 66 56 48 8 47 5 1 4 1 95 63
34 106 162 91 117 45 31 67 42 10 52 89 63 27 14 63 51 2 32 35 234 105 64 11 77 63 93 1 80 42 35 5 2 44
39 16 49 59 74 48 60 100 93 73 7 27 33 41 31 27 3 14 22 15 15 75 73 19 14
4 11 29 9
8
150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S

TABLE 3

MONITORING OF LAND SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - SYNOPS & AUTOSYNOPS
MONITORING CENTRE: EXETER
MONTH: July 2005

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for synops & autosynops.
Standard of comparison		:Background field from UKMO global model.
Observation times		:00, 06, 12, 18 UTC
Elements monitored		:Surface pressure (hPa).
Parameters monitored	:HT(m)	:Station height (in metres) as given in WMO No. 9 Vol A
	:RP	:Pressure reporting practice M=mean sea level pressure (hPa) reported. S=Station level pressure reported. 8=Geopotential height (m) of 850 hPa surface reported. 7=Geopotential height (m) of 700 hPa surface reported.
	:NOBS	:Number of observations received excluding duplicates.
	:NGE	:Number of observations with gross errors.
	:PGE	:Percentage of observations with gross errors.
	:%REJ	:Percentage of observations flagged excluding those with gross errors.
	:SD	:SD of difference of observations from background values excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors.
GROSS ERROR LIMIT	:15 hPa	(pressure)
SELECTION CRITERIA	:NOBS	≥ 20 ,and one or more of the following:
	1.|bias|	≥ 4 hPa
	2. SD	≥ 6 hPa
	3.PGE	≥ 25.

N.B. For stn ht ≥ 500m, mslp is that calculated from station level pressure where available.
For stn ht < 500m, mslp is that as reported by the station where available.

SUSPECT SYNOPS (PRESSURE) BY WMO REGION JUL 2005

WMO REGION 1:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
60320	35.9N	5.4W	2	MS	59	0	0	2	1.2	-9.1	9.2
60423	36.3N	8.0E	680	S8	88	88	100	0			
61492	16.1N	13.5W	18	MS	47	0	0	9	1.6	5.1	5.3
62056	32.8N	21.9E	625	S8	97	1	1	1	0.9	-5.3	5.4
63671	1.8N	40.1E	244	M	103	0	0	0	0.7	-4.0	4.1
63801	4.9S	29.6E	882	S8	25	2	8	0	0.7	6.8	6.8
63881	8.0S	31.6E	1923	S	36	1	3	3	4.0	12.3	12.9
67295	19.1S	33.5E	731	S8	31	0	0	0	1.3	12.9	13.0
68014	19.6S	18.1E	1411	S8	73	1	1	1	0.5	-7.7	7.7
68030	18.5S	25.6E	1071	S8	72	1	1	0	4.7	8.7	9.9
68102	19.9S	16.4E	1343	S8	55	0	0	0	0.5	5.5	5.5
68300	26.6S	15.1E	16	MS	53	5	9	0	0.5	-14.1	14.1
68312	26.5S	18.1E	1067	S8	73	0	0	0	0.6	4.7	4.7
68396	26.5S	31.3E	641	S8	59	0	0	2	1.1	4.8	4.9
68575	30.0S	30.0E	1175	S8	118	118	100	0			

WMO REGION 2:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
30554	54.5N	113.6E	995	MS	121	1	1	2	0.9	11.5	11.5
36982	41.9N	78.2E	3635	S7	118	3	3	1	0.6	5.7	5.7
38565	40.6N	65.7E	485	MS	121	121	100	0			
38846	38.4N	70.0E	1437	S8	105	1	1	3	2.6	-6.0	6.5
40435	27.0N	44.1E	991	MS	59	1	2	2	1.5	7.6	7.7
40700	39.6N	47.9E	45	MS	115	0	0	0	0.7	-5.2	5.2
40713	37.4N	46.3E	1475	MS	116	30	26	1	0.4	14.4	14.4
40726	36.8N	45.7E	1384	MS	110	0	0	1	0.8	4.5	4.6
40741	36.5N	61.2E	235	MS	114	0	0	0	0.7	-4.8	4.9
40743	36.2N	57.7E	978	MS	117	0	0	1	0.9	4.7	4.8
40780	33.6N	46.4E	1362	MS	114	0	0	1	0.9	5.4	5.5
40854	29.1N	58.4E	1067	MS	108	0	0	0	0.6	11.0	11.0
41252	23.4N	56.5E	244	MS	97	0	0	0	0.6	-8.7	8.7
41254	23.1N	57.6E	1755	S8	121	121	100	0			
41396	16.0N	48.9E	700	MS	40	0	0	0	1.1	4.8	4.9
41466	13.7N	44.1E	1402	8	53	0	0	2	1.3	-5.5	5.7
44416	28.6N	81.6E	720	MS	73	1	1	3	1.7	4.7	5.0
47022	40.8N	128.2E	1224	S	64	0	0	0	0.7	5.1	5.1
47678	33.1N	139.8E	79	MS	121	0	0	0	0.8	-8.9	8.9
48924	21.1N	101.5E	644	S	37	0	0	0	0.6	11.3	11.3
48925	20.7N	102.0E	550	S	39	2	5	0	0.8	-9.8	9.8
48938	19.2N	101.7E	326	MS	41	12	29	0	0.5	14.2	14.2
50978	45.3N	130.9E	234	MS	121	0	0	0	0.5	-5.6	5.6
53646	38.3N	109.8E	1058	MS	121	0	0	0	0.6	-11.6	11.6
56462	29.0N	101.5E	2994	S	121	0	0	0	0.8	8.5	8.5
56768	25.0N	101.5E	1773	S	121	0	0	0	0.7	-5.3	5.3
57816	26.6N	106.7E	1074	MS	121	70	58	0	0.4	-14.4	14.4
59663	21.8N	112.0E	22	MS	120	0	0	0	0.6	-7.6	7.6

WMO REGION 3:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
80099	7.1N	70.7W	122	MS	36	0	0	0	1.2	-5.1	5.2
82181	2.0S	54.1W	146	MS	88	1	1	1	0.8	4.9	5.0
82586	5.2S	39.3W	212	MS	88	0	0	0	0.8	-5.1	5.2
82704	7.6S	72.7W	170	MS	79	0	0	0	1.2	-4.5	4.7

83235	12.4S	46.4W	604	MS	86	0	0	0	0.8	6.2	6.3
83332	14.1S	46.4W	826	MS	86	10	12	0	0.6	13.9	13.9
83470	17.9S	50.9W	727	MS	84	1	1	0	0.5	-6.2	6.2
83531	18.6S	46.5W	940	MS	90	0	0	0	0.4	-7.3	7.3
83836	25.5S	50.6W	837	MS	89	0	0	0	0.7	-4.7	4.8
84452	6.8S	79.8W	29	MS	108	0	0	0	0.8	5.9	6.0
84455	6.5S	76.4W	281	MS	83	0	0	0	1.2	7.6	7.7
84472	7.1S	78.5W	2620	S	55	0	0	0	0.7	-6.0	6.0
84474	7.2S	76.7W	350	S	23	1	4	0	0.9	9.3	9.3
84501	8.1S	79.0W	26	MS	83	0	0	0	0.8	4.7	4.8
84686	13.6S	72.0W	3248	S	107	0	0	0	0.9	-4.3	4.4
84688	13.7S	73.4W	3444	S	48	1	2	0	0.5	-12.8	12.8
84720	14.9S	75.0W	567	MS	56	2	4	0	0.8	4.1	4.2
84782	18.1S	70.3W	468	MS	83	0	0	0	1.2	5.2	5.3
85140	14.3S	67.4W	140	MS	59	0	0	0	1.1	7.4	7.5
85264	18.5S	64.1W	1998	S	59	59	100	0			
85312	19.8S	63.9W	992	S	44	2	5	7	1.4	-12.4	12.5
85406	18.3S	70.3W	55	M	120	0	0	0	1.0	4.8	4.9

WMO REGION 4:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
71060	52.5N	116.1W	230	MS	120	120	100	0			
71181	47.1N	55.3W	29	MS	121	0	0	0	0.6	-5.8	5.8
71581	54.5N	128.6W	215	MS	121	82	68	0	3.9	-10.3	11.0
71979	53.8N	118.4W	1542	MS	101	0	0	62	0.5	8.8	8.8
72327	36.1N	86.7W	182	MS	117	0	0	0	0.7	4.1	4.2
76055	31.0N	114.9W	440	MS	33	33	100	0			
76225	28.6N	106.1W	1435	MS	63	0	0	0	0.7	-4.6	4.7
76382	25.5N	103.5W	1124	MS	67	0	0	0	0.9	4.0	4.1
76543	22.0N	98.8W	104	MS	80	0	0	0	0.7	9.2	9.2
76658	19.2N	103.7W	494	MS	46	0	0	0	0.8	5.6	5.7
76683	19.3N	98.3W	2248	MS	71	0	0	0	0.5	4.0	4.0
76687	19.5N	96.9W	1389	MS	85	0	0	0	0.5	4.0	4.0
76762	17.5N	99.5W	1265	MS	94	0	0	0	0.7	6.1	6.1
76843	16.8N	93.1W	528	MS	109	0	0	0	0.8	-4.9	5.0
78588	17.2N	87.5W	-278	M	121	121	100	0			
78655	14.0N	89.6W	660	MS	76	1	1	3	1.4	4.1	4.3

WMO REGION 5:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
92010	6.1S	145.4E	1587	M	27	0	0	7	1.7	9.2	9.4
94130	14.8S	131.9E	120	MS	121	0	0	0	0.8	5.3	5.4
96505	3.7N	115.7E	-9999	8	47	46	98	0	0.0	1.5	1.5
97284	8.6S	120.5E	1170	S8	76	0	0	3	1.4	4.2	4.4
97378	10.7S	123.1E	1	MS	26	26	100	0			

WMO REGION 6:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
01360	61.9N	7.9E	711	MS	115	0	0	0	0.6	5.7	5.7
06239	54.9N	44.7E	49	MS	359	2	1	0	6.6	2.3	7.0
06780	46.8N	9.8E	2690	S7	121	0	0	0	0.6	4.1	4.1
08912	42.9N	0.8W	1434	MS	60	60	100	0			
08922	42.8N	0.2W	1660	MS	61	61	100	0			
10850	48.8N	10.7E	457	MS	361	0	0	0	0.4	-5.2	5.2
11116	47.5N	10.8E	870	MS	59	0	0	0	0.6	4.4	4.4
11541	48.9N	14.4E	432	M	118	29	25	70	6.0	-7.0	9.2

13269	44.3N	19.9E	176	MS	121	0	0	0	0.6	7.7	7.7
14554	44.9N	18.4E	136	S	60	0	0	0	0.7	-13.0	13.0
16344	39.3N	16.4E	1710	S8	286	0	0	0	1.2	5.1	5.2
16538	40.1N	9.3E	1022	S	20	0	0	0	0.7	9.3	9.3
17270	37.1N	38.8E	547	MS	121	0	0	54	4.9	4.7	6.8
17521	35.2N	33.5E	285	MS	110	109	99	0	0.0	-1.4	1.4
40030	35.1N	36.8E	301	M	41	0	0	2	1.0	-4.1	4.2

ANTARCTIC:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
89004	71.7S	2.8W	815	MS	110	0	0	2	2.0	-7.7	8.0
89257	75.4S	59.9W	40	M	801	0	0	0	1.5	-8.2	8.3
89266	72.2S	60.2W	91	M	322	279	87	0	0.7	-4.9	4.9
89512	70.8S	11.8E	140	MS	120	0	0	0	1.4	-4.6	4.8
89610	65.9S	113.1E	90	S	329	0	0	0	1.3	-9.4	9.5
89614	66.7S	111.5E	500	S	332	332	100	0			
89744	74.0S	43.1E	3353	S	342	0	0	0	0.7	7.2	7.2
89767	70.9S	69.9E	84	S	119	0	0	3	2.3	-4.7	5.2
89769	78.5S	168.4E	50	S	880	0	0	0	2.1	-4.7	5.1
89811	66.7S	112.8E	1366	S	338	0	0	1	1.7	-6.8	7.0
89868	79.9S	170.0E	60	S	357	0	0	0	1.7	-5.1	5.4

TABLE 4A

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS
MONITORING CENTRE: EXETER
MONTH: July 2005

Monitoring procedures		
Period		:One calendar month.
Data monitored		:Statistics for each airline carrier.
Area monitored		:90°N - 90°S, 180°W - 180°E.
Standard of comparison		:Background field from UKMO global model.
Observation times		:All hours combined.
Level(s) monitored		:300.0 - 150.0 hPa
Elements monitored		:TEMP in °C ; WIND in $m\ s^{-1}$
Parameters monitored		
	:N REP.	:Number of observations received excluding duplicates.
	:PG	:Percentage of observations with gross errors.
	:PR	:Percentage of observations rejected by quality control including rejections from the duplicate check.
	:PC	:Percentage of observations with calm winds.
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors in Temperature & Wind Speed.
GROSS ERROR LIMITS		:10.0 °C ; 60 $m\ s^{-1}$ Vector Wind
SELECTION CRITERIA		:N REP $\geq$ 20

NB : All American ACARS data are grouped together and statistics are shown at the bottom of the table as "US ACARS".

		TEMPERATURE						WIND			
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AAH	3569	1	47	1.1	0.3	3536	0	46	0	3.9	0.2
AAL	9876	0	29	1.2	0.0	9356	0	30	0	4.7	0.4
AAR	1047	1	4	1.3	-0.7	1041	0	5	0	6.6	-0.2
ABD	51	0	6	1.0	-0.5	59	0	10	0	7.3	1.0
ACA	3762	0	8	1.5	-0.1	2957	0	10	0	6.4	0.3
ACI	142	1	11	0.9	0.2	142	0	11	0	5.5	0.2
AEA	1746	1	3	1.4	0.3	1429	0	2	0	5.9	0.5
AFL	759	0	2	1.7	0.4	451	0	2	0	6.4	0.2
AFR	4485	0	4	1.3	0.1	4375	0	4	0	4.9	0.5
AFZ	1705	0	9	1.6	1.3	1705	0	10	0	6.3	0.7
AJM	248	0	1	1.2	-0.4	216	0	2	0	6.6	0.4
AJX	337	0	4	1.4	0.8	328	0	7	0	7.2	0.8
AME	29	0	3	1.1	-0.6	29	0	3	0	6.5	1.1
AMT	2438	0	44	1.0	-0.1	2417	0	44	0	4.6	0.2
AMX	566	1	4	1.7	0.1	522	0	3	0	7.7	0.5
ANA	34	0	0	1.4	0.0	34	0	3	0	5.9	-0.6
ANZ	6194	1	33	1.4	0.0	6165	0	33	0	7.2	0.2
ARG	32	0	25	1.5	-0.5	29	0	28	0	6.6	0.5
ATN	115	1	100	3.2	-1.4	111	1	14	0	10.4	1.5
AUA	366	0	4	1.4	0.4	353	0	2	0	4.6	0.6
AVA	454	1	3	1.5	0.6	452	0	3	0	6.8	0.5
AVN	147	0	46	0.9	0.0	147	0	46	0	4.7	-0.2
AZA	691	0	3	1.4	0.1	571	0	4	0	7.5	0.1
BAL	506	0	5	1.1	0.1	484	0	8	0	6.6	0.2
BAW	2390	0	8	1.5	0.0	2091	3	27	0	19.5	0.4
BBR	292	0	1	1.3	0.8	291	0	3	0	7.3	1.0
BHP	32	0	6	2.1	-1.4	24	0	4	0	9.2	0.6
BMA	327	0	4	1.4	-0.1	246	0	3	0	4.9	0.6
BPA	630	1	7	1.1	0.2	634	0	7	0	7.0	0.3
BSK	49	4	16	1.1	0.2	37	0	19	0	10.0	-1.1
BWA	446	0	3	1.4	-0.1	381	0	3	0	6.3	0.6
CAL	21	0	14	1.1	-0.6	22	0	18	0	5.1	1.0
CCA	370	1	15	2.2	0.0	398	0	100	0	11.2	-1.0
CES	615	1	5	1.6	-0.2	603	0	7	0	8.6	0.3
CFG	1053	0	3	1.5	0.1	856	0	2	0	6.1	0.0
CKK	123	2	11	1.8	0.7	136	0	12	0	8.4	0.6
CKS	324	1	28	1.6	0.4	285	0	34	0	8.7	-0.1
CLX	371	0	3	1.6	-0.1	223	0	6	0	6.5	-0.3
CNJ	45835	0	74	1.0	0.5	45835	0	74	0	4.7	0.3
COA	3663	0	8	1.2	0.0	3457	0	6	0	4.5	0.6
CRL	693	0	3	1.5	0.1	654	0	6	0	6.4	0.1
CSD	35	0	0	1.6	0.9	20	0	0	0	5.2	0.5
CSN	114	3	14	1.7	-0.3	113	0	11	0	7.0	1.3
CUB	315	1	4	1.8	-0.6	276	0	5	0	8.5	0.3
DAL	3815	0	36	1.3	0.3	3735	0	37	0	4.3	0.2
DLH	4596	0	6	1.2	0.1	4479	0	6	0	4.9	0.6
DRD	531	1	3	1.4	-0.2	525	0	3	0	6.9	0.9
EDW	128	0	4	1.3	-0.1	105	0	4	0	5.8	1.5
EEZ	210	0	10	1.8	0.0	195	0	10	0	5.9	0.2
EIA	279	0	15	1.3	0.2	269	0	100	0	15.9	3.7
ELY	401	0	1	1.1	0.1	372	0	1	0	4.3	0.2
ETH	33	0	6	0.7	-0.1	34	0	6	0	3.7	0.2
EUK	61	2	5	1.5	0.0	47	0	4	0	6.8	1.7
EVA	86	1	2	1.0	0.0	95	0	9	0	9.0	0.5
FCA	266	0	12	2.4	0.7	232	0	5	0	7.4	0.9
FDX	1996	0	49	1.2	0.2	1742	0	51	0	7.0	0.6
FIN	543	0	4	1.5	0.3	443	0	4	0	6.1	0.5
FJI	1105	1	30	1.5	0.5	1087	0	30	0	7.0	0.3
FOM	865	1	25	1.6	-0.2	866	1	25	0	6.7	0.3

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
FWI	722	1	3	1.3	-0.2	722	0	3	0	5.9	0.9
GAF	63	0	13	1.8	-0.6	37	0	11	0	4.6	0.9
GCO	125	1	13	1.3	0.0	127	2	100	0	12.2	2.0
GRL	131	0	4	1.7	0.5	122	1	3	0	7.1	0.7
GTI	281	0	53	1.9	0.6	256	0	17	0	7.3	0.0
HAL	4990	6	49	2.5	0.9	4923	0	41	0	5.8	-0.1
HMY	30	0	47	1.0	-0.6	30	0	47	0	5.7	-2.7
IBE	4275	0	5	1.4	0.3	4198	0	5	0	6.5	0.6
ICE	1292	0	3	1.7	-0.2	768	0	2	0	6.3	0.6
ISR	76	1	5	1.7	-0.4	45	0	4	0	9.5	-0.9
IWD	830	1	2	1.2	-0.1	826	0	2	0	6.1	1.0
JAL	1901	0	6	1.6	0.3	1868	0	6	0	7.3	0.5
JAZ	838	1	5	1.3	0.7	820	0	6	0	7.2	0.8
JBU	76	5	8	1.7	0.2	83	0	1	0	4.7	1.0
KAC	121	0	7	1.1	0.4	118	0	7	0	4.0	0.7
KAI	43	0	37	2.0	1.7	40	0	40	0	5.9	1.2
KAL	1746	0	5	1.6	0.1	1745	0	6	0	7.1	-0.2
KFS	29	3	59	4.2	3.9	25	0	44	0	13.6	1.3
KIW	23	0	52	2.3	-0.3	22	0	50	0	8.7	-1.1
KLM	1765	0	6	1.4	0.0	1491	0	7	0	6.2	0.5
LAN	733	0	4	1.7	-0.2	720	0	4	0	5.7	0.4
LAP	70	4	51	3.0	1.1	68	0	47	0	9.2	1.2
LDI	415	0	3	1.3	0.2	369	0	2	0	4.8	0.7
LNE	135	1	4	1.4	0.4	134	1	3	0	6.9	0.7
LOT	613	0	3	1.8	-0.2	395	0	4	0	7.7	0.4
LTU	1069	0	5	1.3	0.1	891	0	5	0	6.5	1.0
LXR	116	0	3	1.8	0.0	98	0	2	0	5.1	1.1
MAS	325	0	8	2.1	0.4	315	0	5	0	6.3	0.0
MON	69	0	1	1.0	-0.3	43	0	9	0	7.9	1.4
MPD	661	1	3	1.4	0.2	620	0	8	0	9.4	1.8
MPH	665	0	2	1.6	-0.8	496	0	1	0	5.9	0.3
MSR	113	0	1	1.4	0.7	110	0	1	0	3.9	0.8
MXA	41	0	5	2.5	0.4	43	0	100	0	12.5	-2.6
MYT	480	1	2	1.3	-0.1	339	0	1	0	5.8	0.6
NAO	497	0	41	1.2	-0.3	485	0	42	0	5.8	0.1
NCA	931	0	5	1.5	0.2	716	0	6	0	7.5	0.0
NOS	47	0	2	0.8	-0.1	36	0	0	0	6.5	0.3
NWA	9758	0	14	1.6	0.1	9521	0	15	0	7.2	0.3
NZL	6842	0	10	1.3	-0.1	6843	0	10	0	4.8	0.2
OAE	448	1	29	1.5	-0.4	376	0	35	0	7.1	1.0
OKS	27	0	0	1.3	-0.5	27	0	4	0	7.7	0.1
OOM	145	1	6	1.9	-0.6	112	0	2	0	6.5	0.6
PAC	418	3	9	1.5	-0.4	387	0	8	0	6.7	-0.3
PAL	1478	0	5	1.4	0.0	1423	0	6	0	7.4	0.2
PAO	278	0	50	1.3	0.1	278	0	50	0	7.4	0.5
PBI	888	1	39	1.4	0.0	886	0	39	0	5.6	0.7
PLM	458	0	2	1.7	1.1	400	0	3	0	6.5	0.5
QFA	4132	0	39	1.4	0.2	4129	0	39	0	5.6	-0.2
RAM	483	0	3	1.5	0.3	390	0	6	0	8.6	0.0
RCH	295	0	100	3.4	-1.0	243	0	100	0	10.0	1.4
RJA	38	0	3	1.2	-0.7	26	0	4	0	5.7	0.8
RRR	119	0	8	1.5	-0.1	123	0	10	0	8.1	0.5
RYN	541	0	41	1.0	-0.2	531	0	42	0	5.7	-0.3
RZO	1158	2	11	2.5	0.3	1070	0	4	0	7.2	0.8
SAA	61	0	2	0.8	-0.1	60	0	3	0	5.0	0.0
SAS	767	0	43	1.2	-0.1	743	0	43	0	4.4	0.8
SCY	36	0	3	1.7	0.3	35	0	6	0	8.8	-0.5
SEU	196	1	3	1.3	-0.1	177	0	5	0	7.6	1.1
SIA	540	0	3	1.4	0.2	535	0	2	0	4.7	0.2

	TEMPERATURE					WIND				
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
SLM	190	1	2	0.9	0.4	188	0	3	0	5.3	0.3
SQC	221	0	0	1.4	0.1	215	0	0	0	4.5	0.1
SSV	148	1	6	1.4	0.2	90	0	11	0	10.5	1.5
SWR	996	0	3	1.3	-0.2	972	0	3	0	4.3	0.9
TAG	33	0	39	2.2	0.7	33	0	39	0	3.1	-0.2
TAM	30	3	50	2.5	0.3	30	0	57	0	18.6	5.6
TAP	1088	0	2	1.5	-0.3	1025	0	3	0	6.8	0.6
TCV	39	3	10	2.3	1.7	39	0	13	0	9.7	1.1
TCX	252	1	4	1.1	0.1	197	0	3	0	5.7	1.1
TFL	221	0	2	0.9	0.2	185	0	5	0	6.9	0.3
THA	286	0	3	1.3	0.4	281	0	4	0	5.2	0.8
THT	1043	0	16	1.1	0.4	1030	0	16	0	5.4	0.7
TPA	36	0	3	1.5	0.3	29	0	0	0	3.9	-0.3
TSC	515	1	5	1.5	-0.5	354	0	3	0	7.1	0.6
TUB	86	0	3	1.2	0.2	47	0	6	0	4.7	0.2
UAE	797	0	4	1.4	0.4	792	0	4	0	4.6	0.4
UAL	11860	0	42	1.2	0.0	11781	0	42	0	4.6	0.3
UPS	1961	1	54	1.3	0.1	1919	0	54	0	6.5	0.3
USA	1372	0	3	1.1	0.0	1304	0	2	0	4.3	0.8
VHF	32	0	0	1.5	0.0	32	0	3	0	10.5	1.4
VIR	1658	0	3	1.2	-0.1	1593	0	3	0	4.5	0.4
VLE	25	0	8	1.3	0.0	25	0	8	0	5.1	-0.3
VRG	55	0	38	2.6	-0.4	55	0	100	0	13.3	2.7
VVJ	43	0	14	1.0	0.0	42	0	17	0	6.5	0.3
VVR	63	0	38	2.4	1.5	63	0	37	0	6.0	0.6
WOA	420	0	10	1.2	0.2	344	0	13	0	9.2	0.7
XLA	238	0	2	1.3	0.0	226	0	2	0	5.9	0.2
YSS	202	1	5	1.5	0.1	196	0	2	0	6.0	0.6

	TEMPERATURE					WIND				
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AU	43130	0	15	1.3	0.6	43586	0	15	0	5.1	0.5
B-	14055	0	63	1.7	0.9	12664	0	64	0	5.6	0.2
EU	227241	0	26	1.2	0.4	227240	0	26	0	4.5	0.3
HK	3200	0	20	1.0	0.5	3200	0	21	0	4.8	-0.4
JP	59105	0	63	1.4	0.8	59105	0	62	0	4.9	0.5
MK	2570	0	37	1.9	1.6	2570	0	4	0	7.5	1.9
SA	4935	0	6	1.1	0.4	4935	0	6	0	5.9	0.6
TN	63	3	30	1.8	0.4	63	0	29	0	5.4	0.6
UA	308319	0	98	0.9	-0.1	307967	0	98	0	4.5	0.5

	TEMPERATURE					WIND				
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
N	952	1	22	2.1	0.4	771	0	26	0	8.8	0.9
US ACARS	1136577	0	66	1.2	0.4	1136562	0	65	0	4.9	0.7

TABLE 4B

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS
MONITORING CENTRE: EXETER
MONTH: July 2005

Monitoring procedures		
Period		:One calendar month.
Data monitored		:Statistics for each airline carrier.
Area monitored		:90°N - 90°S, 180°W - 180°E.
Standard of comparison		:Background field from UKMO global model.
Observation times		:All hours combined.
Level(s) monitored		:1000.0 – 300.1 hPa
Elements monitored		:TEMP in °C ; WIND in m s^{-1}
Parameters monitored		
	:N REP.	:Number of observations received excluding duplicates.
	:PG	:Percentage of observations with gross errors.
	:PR	:Percentage of observations rejected by quality control including rejections from the duplicate check.
	:PC	:Percentage of observations with calm winds.
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors in Temperature & Wind Speed.
GROSS ERROR LIMITS		:10.0 °C ; 60 m s^{-1} Vector Wind
SELECTION CRITERIA		:N REP ≥ 20

NB : All American ACARS data are grouped together and statistics are shown at the bottom of the table as "US ACARS".

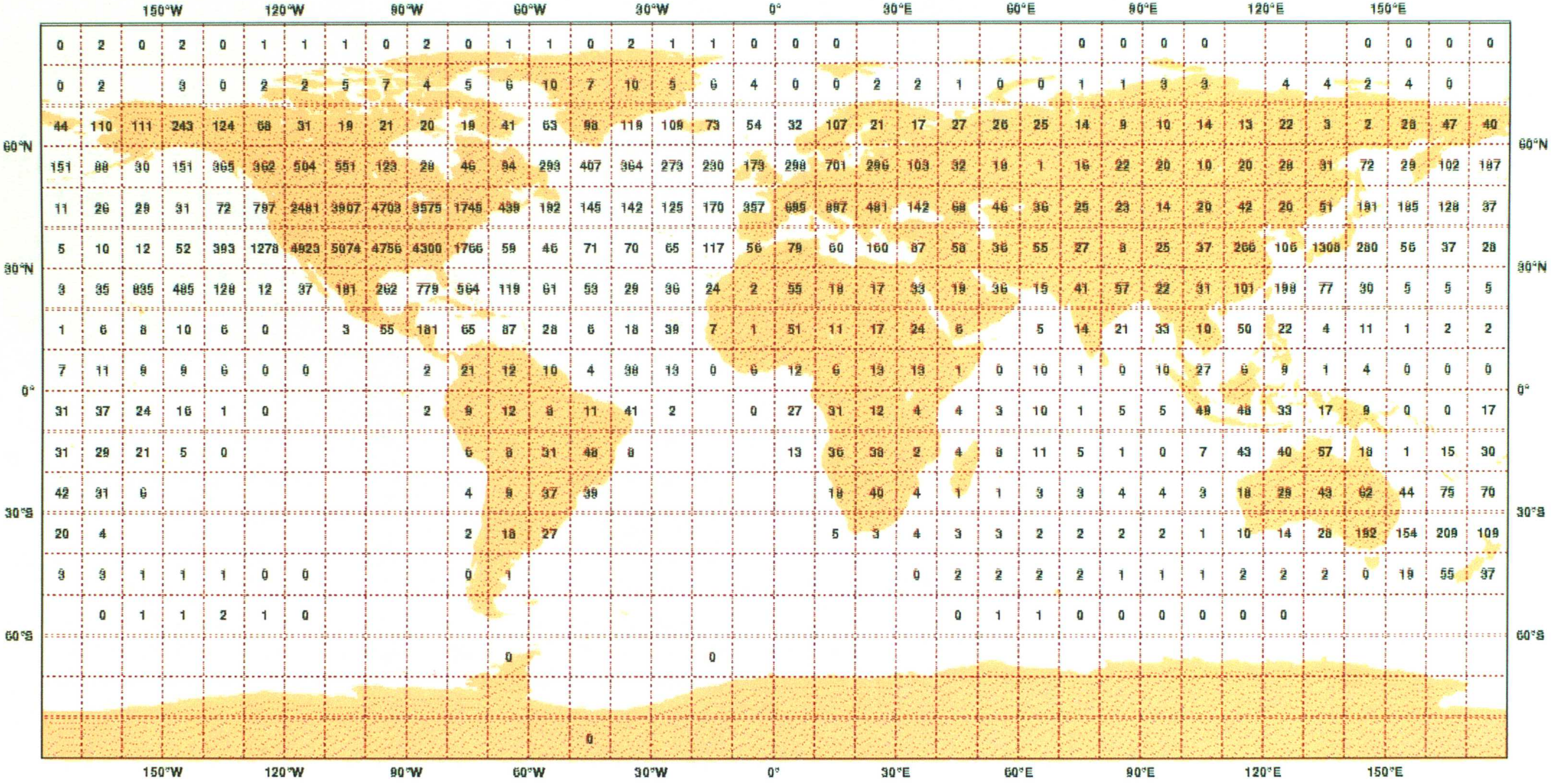
	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AAL	67	0	15	2.3	-0.3	52	0	17	0	8.9	2.4
ACA	59	3	12	0.9	0.0	54	0	19	0	10.1	3.2
AFR	53	0	6	1.3	0.0	53	0	4	0	4.5	0.0
AFZ	610	0	38	1.3	-0.3	610	0	38	0	4.2	0.4
AMT	90	0	31	0.9	0.1	86	0	33	0	3.5	0.6
AMX	29	0	3	1.5	0.2	25	0	0	0	4.0	0.0
ANZ	310	3	32	1.4	-0.1	318	0	31	0	7.5	0.3
BAF	32	9	9	1.2	0.1	29	0	0	0	5.5	-0.5
BAL	52	0	0	0.9	-0.1	54	0	4	0	6.9	0.3
CFC	57	4	11	2.0	0.7	50	0	6	0	8.2	0.4
CFG	26	0	0	0.6	0.0	23	0	0	0	4.0	-0.1
CKS	70	1	30	1.8	1.0	60	0	35	0	8.4	1.1
CNJ	660448	0	85	1.8	0.6	660448	0	87	0	4.8	0.1
CWC	52	0	6	2.5	-0.6	29	0	14	0	12.4	2.1
DAF	35	0	3	1.5	0.2	33	0	15	0	13.1	0.3
DAL	69	3	46	1.4	-0.1	67	0	43	0	4.4	0.5
DLH	231	1	14	1.3	0.1	231	0	15	0	7.0	-0.2
EIA	53	0	17	1.1	-0.1	51	0	100	0	22.6	10.5
FDX	545	0	35	1.1	0.4	392	0	32	0	8.0	0.2
FJI	20	15	45	2.8	1.3	20	10	40	0	13.5	0.5
FOM	28	0	39	2.3	-0.6	28	0	36	0	5.7	0.4
FXI	58	3	19	3.5	1.5	57	0	0	0	5.6	-1.0
GAF	83	2	4	1.0	0.4	46	0	2	0	5.8	0.2
GCO	86	0	14	1.4	0.1	87	0	100	0	16.3	4.3
HAL	319	3	46	3.1	1.2	317	0	40	0	5.5	2.3
ICE	55	2	4	1.0	-0.2	35	0	6	0	7.6	1.9
JAL	49	2	8	1.8	0.0	48	0	4	0	7.2	-0.8
KAL	74	4	12	1.4	0.0	74	0	11	0	6.5	-0.2
KIW	53	2	34	3.2	1.9	53	0	30	0	7.6	-2.0
KLM	68	0	9	2.0	0.2	60	0	8	0	7.3	1.0
LAN	89	6	24	1.9	-0.2	62	0	15	0	7.7	0.3
MAS	69	0	13	1.3	0.2	70	0	11	0	4.3	0.4
MPH	54	0	0	1.2	-0.2	36	0	3	0	6.2	1.4
NCA	98	1	2	1.5	0.2	90	0	6	0	7.7	0.0
NWA	416	1	7	1.5	0.3	407	0	9	0	7.5	0.2
NZL	26781	0	56	1.0	0.3	26781	0	56	0	4.4	0.1
OAE	63	3	11	1.2	-0.3	37	0	3	0	6.5	0.9
OCE	26	0	4	3.2	2.8	25	0	0	0	5.1	1.9
PAC	82	0	13	1.8	0.2	78	0	12	0	7.6	-1.1
PAL	32	0	6	2.5	-0.8	30	0	3	0	5.5	1.0
QFA	270	0	45	1.2	0.4	270	0	45	0	5.5	0.3
RCH	44	0	100	2.0	0.1	30	0	100	0	11.2	2.6
RRR	88	2	24	3.6	1.7	88	0	9	0	9.4	1.3
SIA	130	0	6	1.2	0.5	132	0	7	0	4.8	1.2
THA	29	0	7	0.8	0.1	30	0	7	0	4.6	0.1
THT	45	0	49	0.7	0.1	45	0	49	0	9.6	-3.0
UAE	130	0	5	1.0	0.5	130	0	5	0	4.2	-0.4
UAL	198	5	34	1.6	-0.3	200	0	32	0	6.5	-0.3
UPS	187	0	43	1.1	0.0	182	0	44	0	7.8	-0.3
VVP	23	0	57	4.3	3.1	23	0	43	0	12.9	7.3
VVR	32	0	31	3.3	-2.2	41	0	15	0	4.0	1.3
WOA	172	0	7	1.3	0.8	115	0	17	0	13.3	2.8

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AU	56209	0	60	1.3	0.7	56598	0	60	0	4.1	0.2
B-	84915	0	76	1.3	0.0	82097	0	75	0	4.1	0.4
EU	640268	0	67	1.0	0.2	635278	0	67	0	3.7	0.1

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
HK	4223	0	74	1.1	0.1	4223	0	74	0	3.3	0.2
JP	285559	0	81	1.2	0.1	285559	0	81	0	4.0	0.6
MK	2766	0	61	1.3	0.6	2764	0	46	0	4.9	0.8
SA	4014	0	57	1.5	0.3	4014	0	57	0	4.1	0.2
UA	265200	0	98	1.0	-0.2	264937	0	98	0	3.6	0.5

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
N	46	2	9	1.5	0.6	29	0	41	0	18.0	5.0
US ACARS	1606288	0	79	1.1	0.2	1601022	0	79	0	3.7	0.4

Figure 3a. AIRCRAFT 300 - 150 hPa mean daily count. JULY 2005
Observations with O-B vector difference greater than 60 ms-1 excluded
Global average number of observations in 24 hours = 63987



0	2	0	2	0	1	1	1	0	2	0	1	1	0	2	1	1	0	0	0						0	0	0	0				0	0	0	0
0	2		9	0	2	2	5	7	4	5	6	10	7	10	5	6	4	0	0	2	2	1	0	0	1	1	9	9		4	4	2	4	0	
44	110	111	243	124	68	31	19	21	20	19	41	63	98	119	109	73	54	32	107	21	17	27	26	25	14	9	10	14	13	22	3	2	28	47	40
151	88	30	151	365	362	504	551	123	28	46	94	293	407	364	273	230	179	298	701	286	103	32	19	1	16	22	20	10	20	28	31	72	29	102	187
11	26	29	31	72	787	2481	3907	4703	3575	1746	439	192	145	142	125	170	357	695	887	481	142	68	46	36	25	23	14	20	42	20	51	191	185	128	37
5	10	12	52	393	1278	4923	5074	4756	4300	1766	59	46	71	70	65	117	56	79	60	160	87	58	36	55	27	8	25	37	266	106	1308	280	56	37	28
9	35	835	485	128	12	37	181	262	779	564	119	61	59	29	36	24	2	55	19	17	33	19	36	15	41	57	22	31	101	199	77	30	5	5	5
1	6	8	10	6	0		3	55	181	65	87	28	6	18	39	7	1	51	11	17	24	6		5	14	21	33	10	50	22	4	11	1	2	2
7	11	9	9	6	0	0			2	21	12	10	4	38	13	0	6	12	6	13	13	1	0	10	1	0	10	27	6	9	1	4	0	0	0
31	37	24	16	1	0				2	9	12	8	11	41	2		0	27	31	12	4	4	3	10	1	5	5	49	48	33	17	9	0	0	17
31	29	21	5	0						6	9	31	48	8				13	36	38	2	4	8	11	5	1	0	7	43	40	57	18	1	15	30
42	31	6								4	9	37	39						18	40	4	1	1	3	3	4	4	3	18	29	43	62	44	75	70
20	4									2	18	27							5	3	4	3	3	2	2	2	2	1	10	14	28	192	154	209	109
9	9	1	1	1	0	0				0	1										0	2	2	2	2	1	1	1	2	2	2	0	19	55	97
	0	1	1	2	1	0																0	1	1	0	0	0	0	0	0					
											0					0																			
													0																						

Figure 3b. AIRCRAFT 1000 - 301 hPa mean daily count. JULY 2005
Observations with O-B vector difference greater than 60 ms-1 excluded
Global average number of observations in 24 hours = 117082

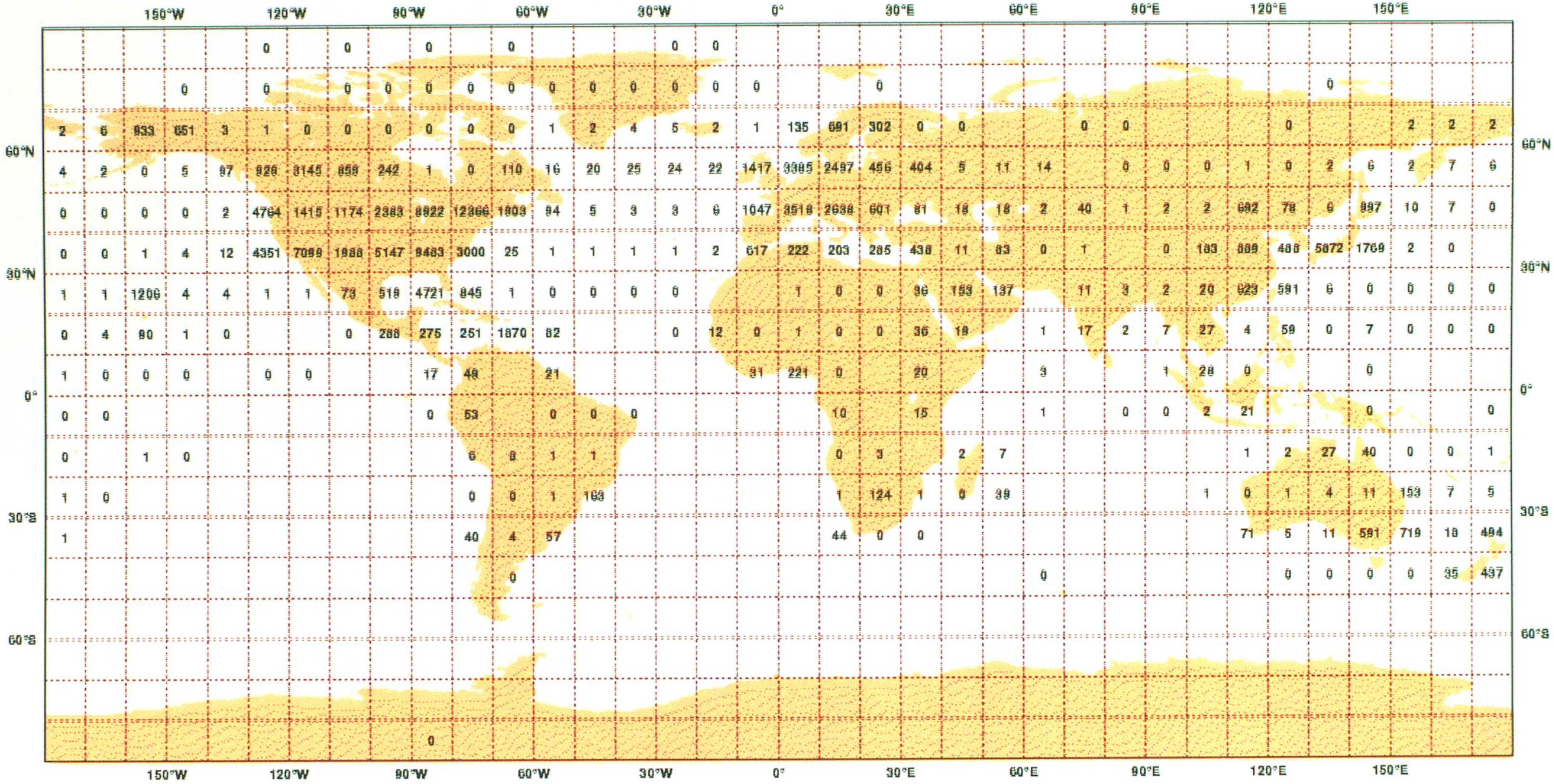

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
2 6 933 651 3 1 0 0 0 0 0 0 1 2 4 5 2 1 135 691 302 0 0 0 0 0 2 2 2
4 2 0 5 97 926 3145 858 242 1 0 110 16 20 25 24 22 1417 3385 2497 456 404 5 11 14 0 0 0 1 0 2 6 2 7 6
0 0 0 0 2 4764 1415 1174 2383 8822 12366 1803 84 5 3 3 6 1047 3518 2638 601 81 18 18 2 40 1 2 2 692 78 6 897 10 7 0
0 0 1 4 12 4351 7099 1988 5147 9483 3000 25 1 1 1 1 2 617 222 203 285 438 11 83 0 1 0 183 889 488 5872 1769 2 0
1 1 1206 4 4 1 1 73 518 4721 845 1 0 0 0 0 1 0 0 36 153 137 11 3 2 20 623 591 6 0 0 0 0
0 4 90 1 0 0 288 275 251 1870 82 0 12 0 1 0 0 36 19 1 17 2 7 27 4 59 0 7 0 0 0
1 0 0 0 0 0 17 48 21 81 221 0 20 3 1 28 0 0
0 0 0 53 0 0 0 10 15 1 0 0 2 21 0 0
0 1 0 6 8 1 1 0 3 2 7 1 2 27 40 0 0 1
1 0 0 0 1 163 1 124 1 0 39 1 0 1 4 11 153 7 5
1 40 4 57 44 0 0 71 5 11 591 719 18 494
0 0 0 0 0 0 35 437
0

Figure 4a. AIRCRAFT 300 - 150 hPa mean winds. JULY 2005
Observations with O-B vector difference greater than 60 ms-1 excluded
Arrows are plotted where greater than 30 obs are present

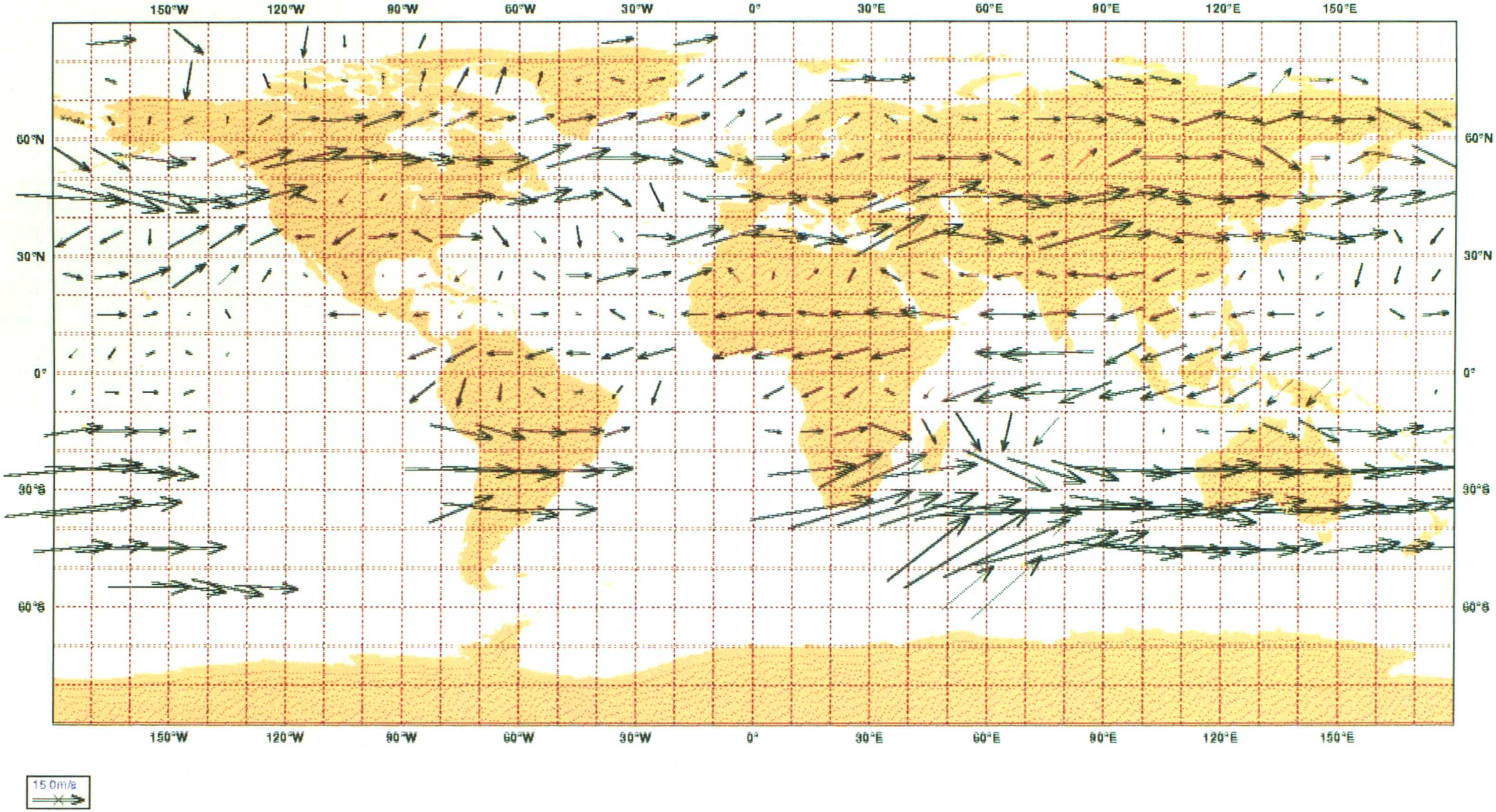

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
15.0m/s

Figure 4b. AIRCRAFT 1000 - 301 hPa mean winds. JULY 2005
Observations with O-B vector difference greater than 60 ms-1 excluded
Arrows are plotted where greater than 30 obs are present

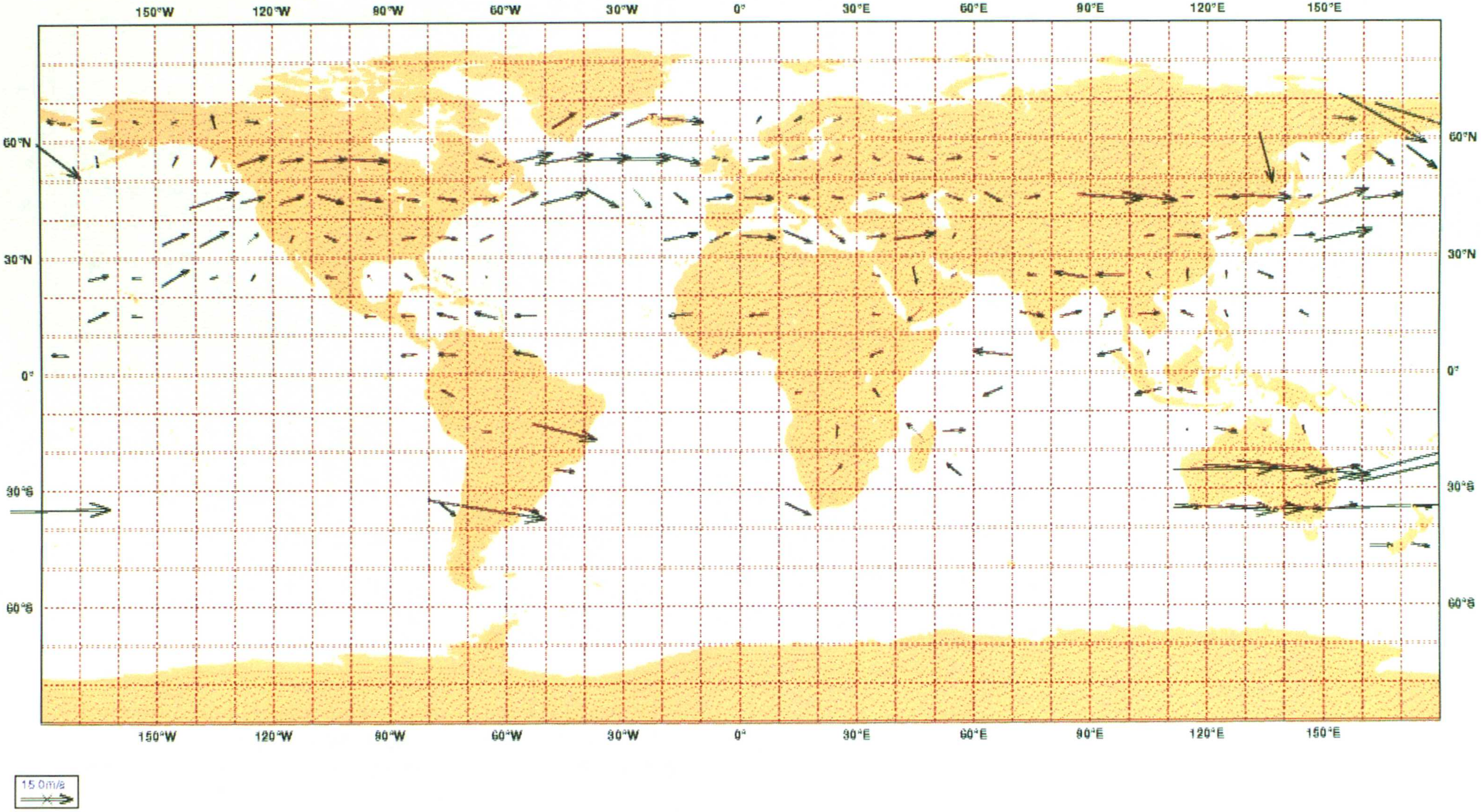

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
15.0m/s

Figure 5a. AIRCRAFT 300 - 150 hPa mean O-B winds. JULY 2005
Observations with O-B vector difference greater than 60 ms-1 excluded
Arrows are plotted where greater than 30 obs are present

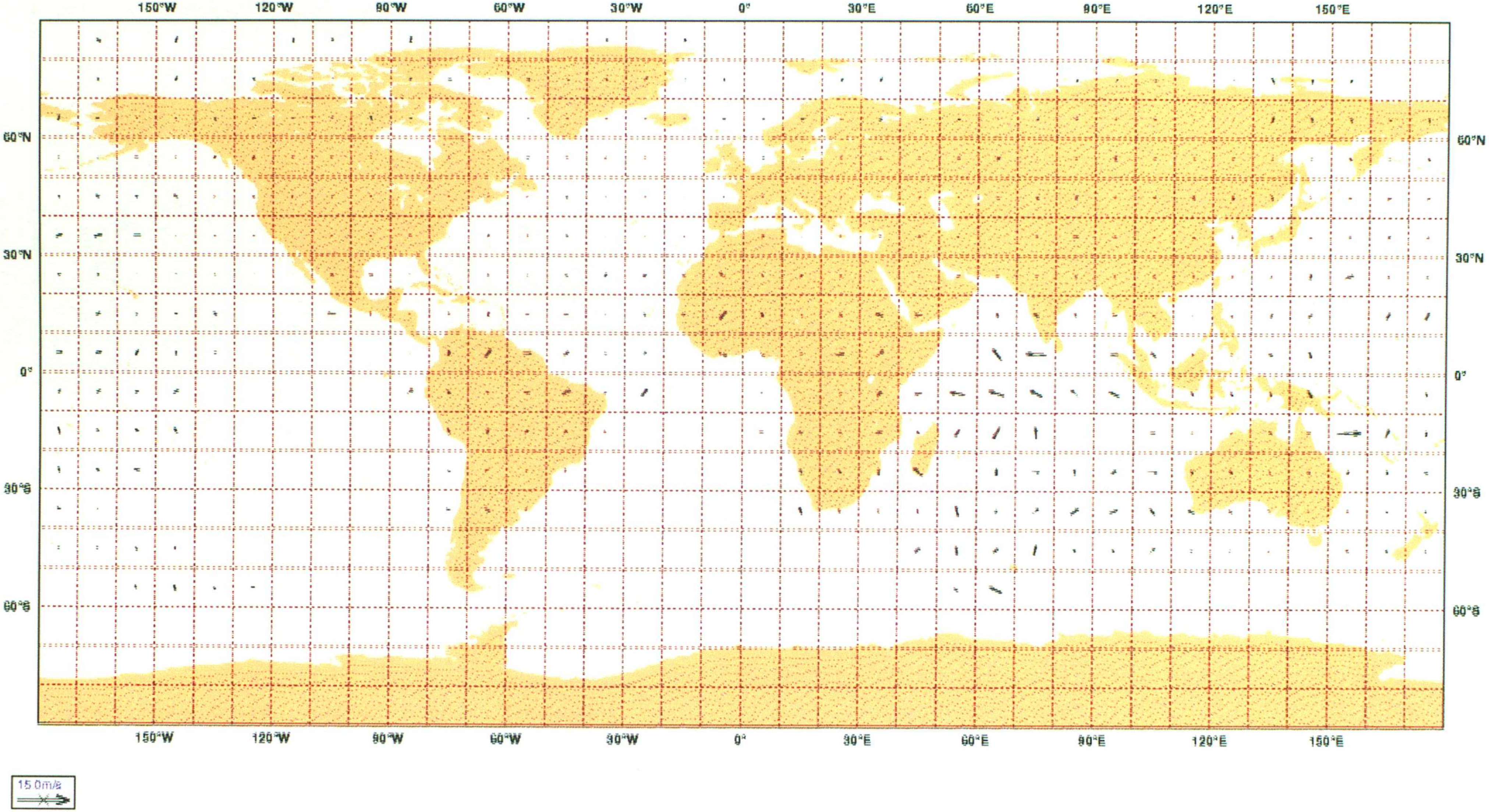

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
15.0m/s

Figure 5b. AIRCRAFT 1000 - 301 hPa mean O-B winds. JULY 2005
Observations with O-B vector difference greater than 60 ms-1 excluded
Arrows are plotted where greater than 30 obs are present

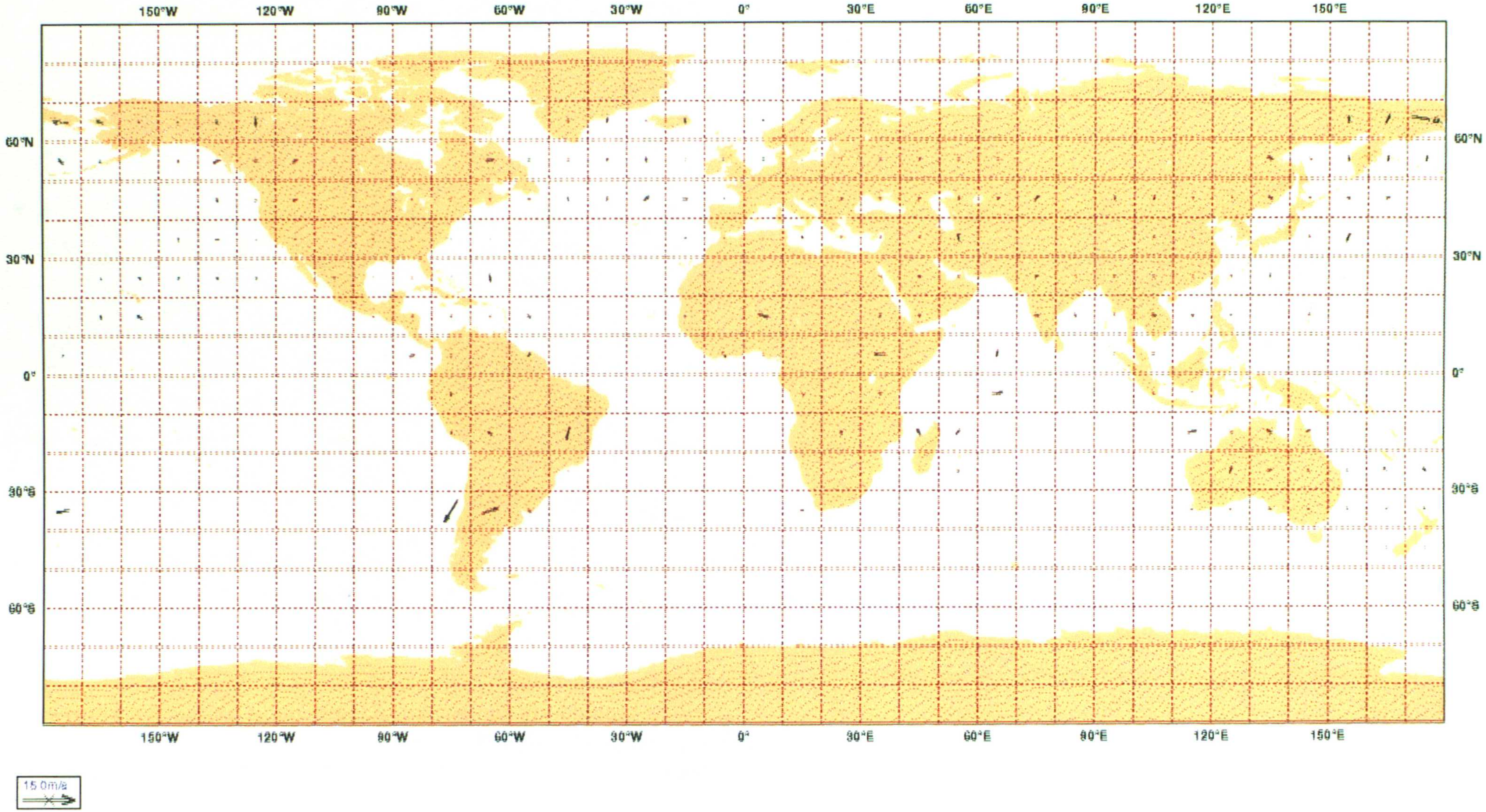

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
15.0m/s

Figure 6a. AIRCRAFT 300 - 150 hPa mean O-B speeds (ms-1). JULY 2005
Observations with O-B vector difference greater than 60 ms-1 excluded
Values are printed where greater than 30 obs are present

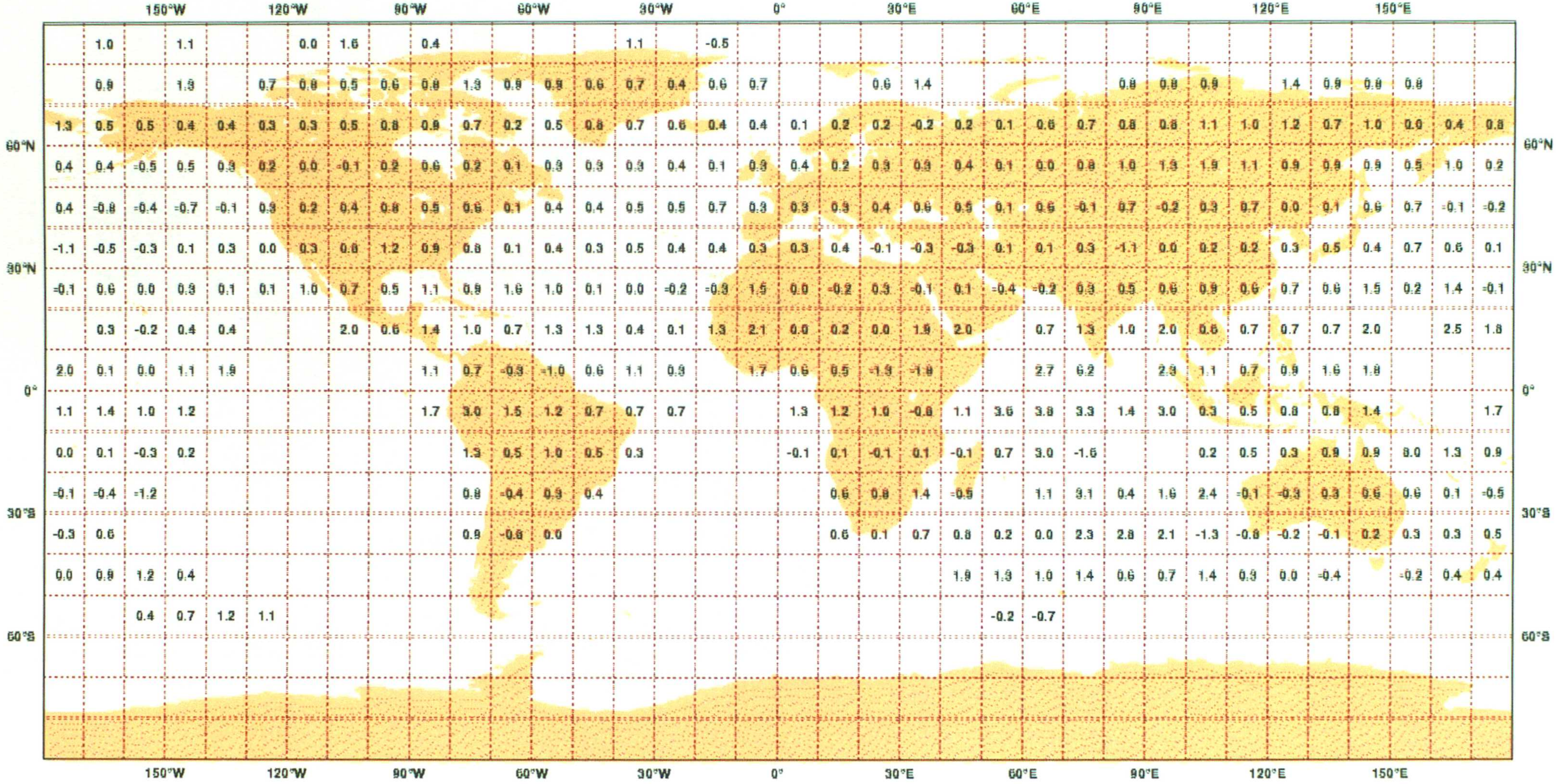

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S

Figure 6b. AIRCRAFT 1000 - 301 hPa mean O-B speeds (ms-1). JULY 2005
Observations with O-B vector difference greater than 60 ms-1 excluded
Values are printed where greater than 30 obs are present

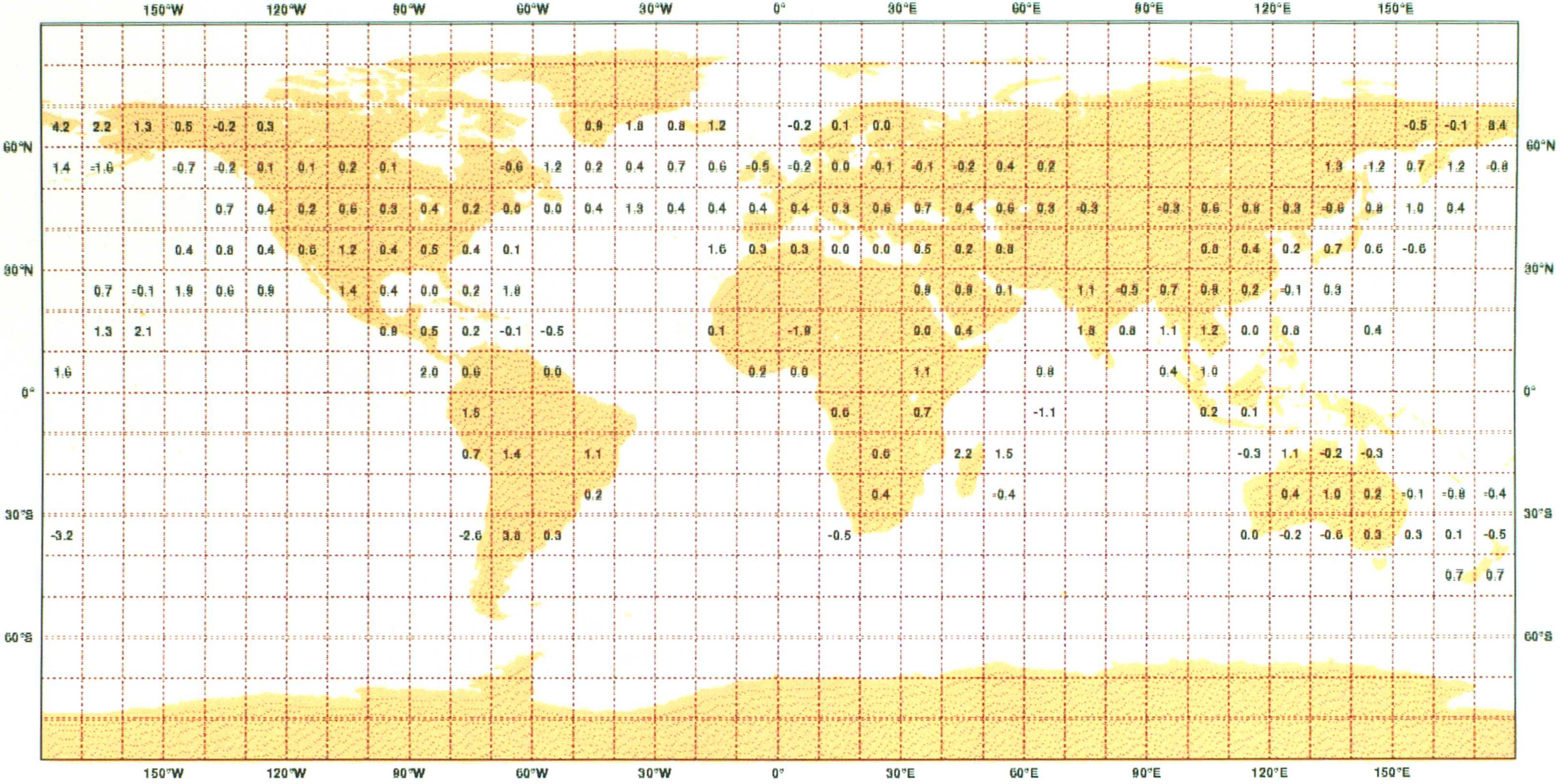

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
4.2 2.2 1.3 0.5 -0.2 0.3 0.9 1.8 0.8 1.2 -0.2 0.1 0.0 -0.5 -0.1 8.4
1.4 -1.6 -0.7 -0.2 0.1 0.1 0.2 0.1 -0.6 1.2 0.2 0.4 0.7 0.6 -0.5 -0.2 0.0 -0.1 -0.1 -0.2 0.4 0.2 1.3 -1.2 0.7 1.2 -0.8
0.7 0.4 0.2 0.6 0.3 0.4 0.2 0.0 0.0 0.4 1.3 0.4 0.4 0.4 0.4 0.3 0.6 0.7 0.4 0.6 0.3 -0.3 -0.3 0.6 0.8 0.3 -0.6 0.8 1.0 0.4
0.4 0.8 0.4 0.6 1.2 0.4 0.5 0.4 0.1 1.6 0.3 0.3 0.0 0.0 0.5 0.2 0.8 0.8 0.4 0.2 0.7 0.6 -0.6
0.7 -0.1 1.9 0.6 0.9 1.4 0.4 0.0 0.2 1.8 0.8 0.8 0.1 1.1 -0.5 0.7 0.9 0.2 -0.1 0.3
1.3 2.1 0.9 0.5 0.2 -0.1 -0.5 0.1 -1.9 0.0 0.4 1.8 0.8 1.1 1.2 0.0 0.8 0.4
1.6 2.0 0.6 0.0 0.2 0.0 1.1 0.8 0.4 1.0
1.5 0.6 0.7 -1.1 0.2 0.1
0.7 1.4 1.1 0.6 2.2 1.5 -0.3 1.1 -0.2 -0.3
0.2 0.4 -0.4 0.4 1.0 0.2 -0.1 -0.8 -0.4
-3.2 -2.6 3.8 0.3 -0.5 0.0 -0.2 -0.6 0.3 0.3 0.1 -0.5
0.7 0.7

Figure 7a. AIRCRAFT 300 - 150 hPa RMS O-B vector (ms-1). JULY 2005
Observations with O-B vector difference greater than 60 ms-1 excluded
Values are printed where greater than 30 obs are present

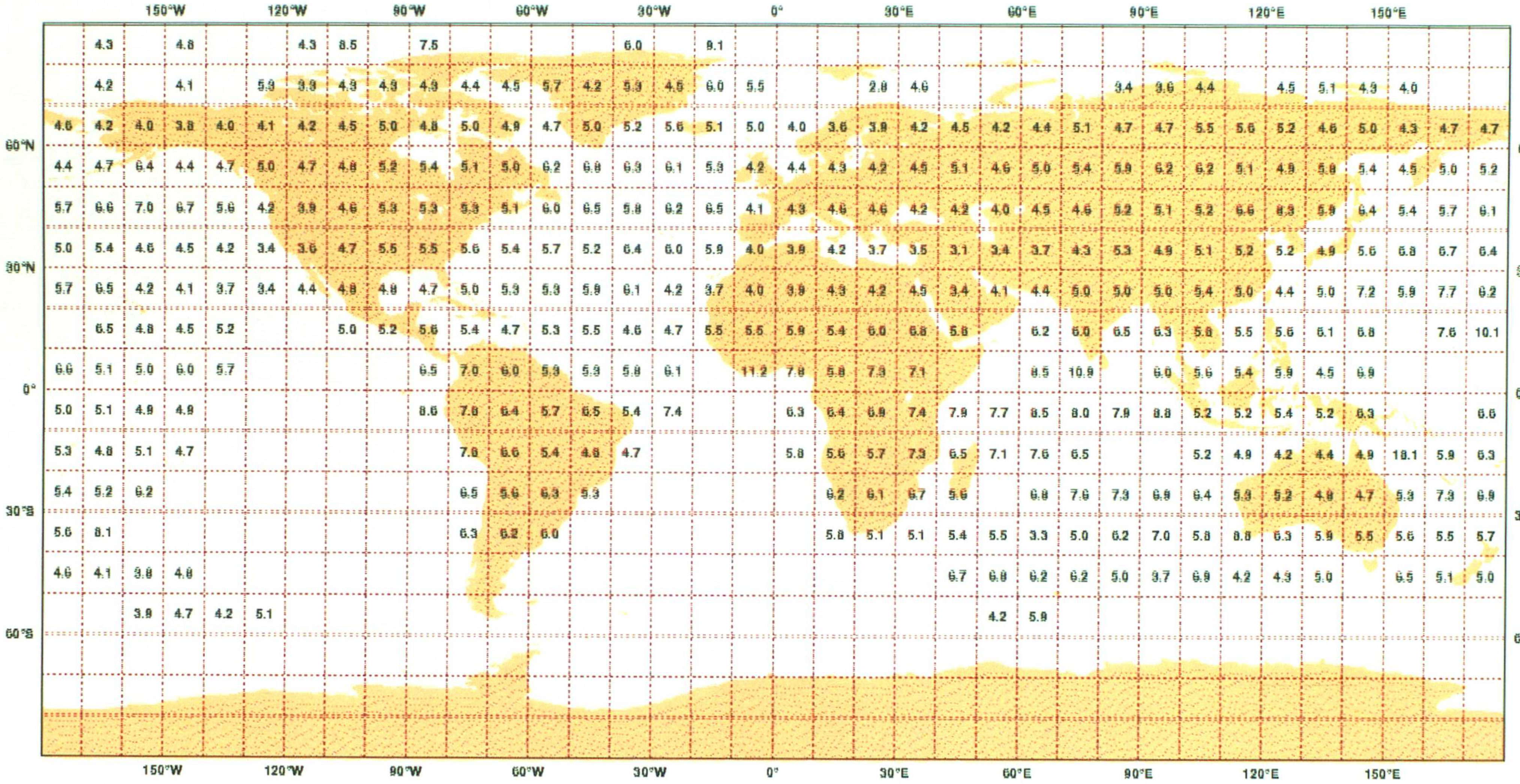

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S

Figure 7b. AIRCRAFT 1000 - 301 hPa RMS O-B vector (ms-1). JULY 2005
Observations with O-B vector difference greater than 60 ms-1 excluded
Values are printed where greater than 30 obs are present

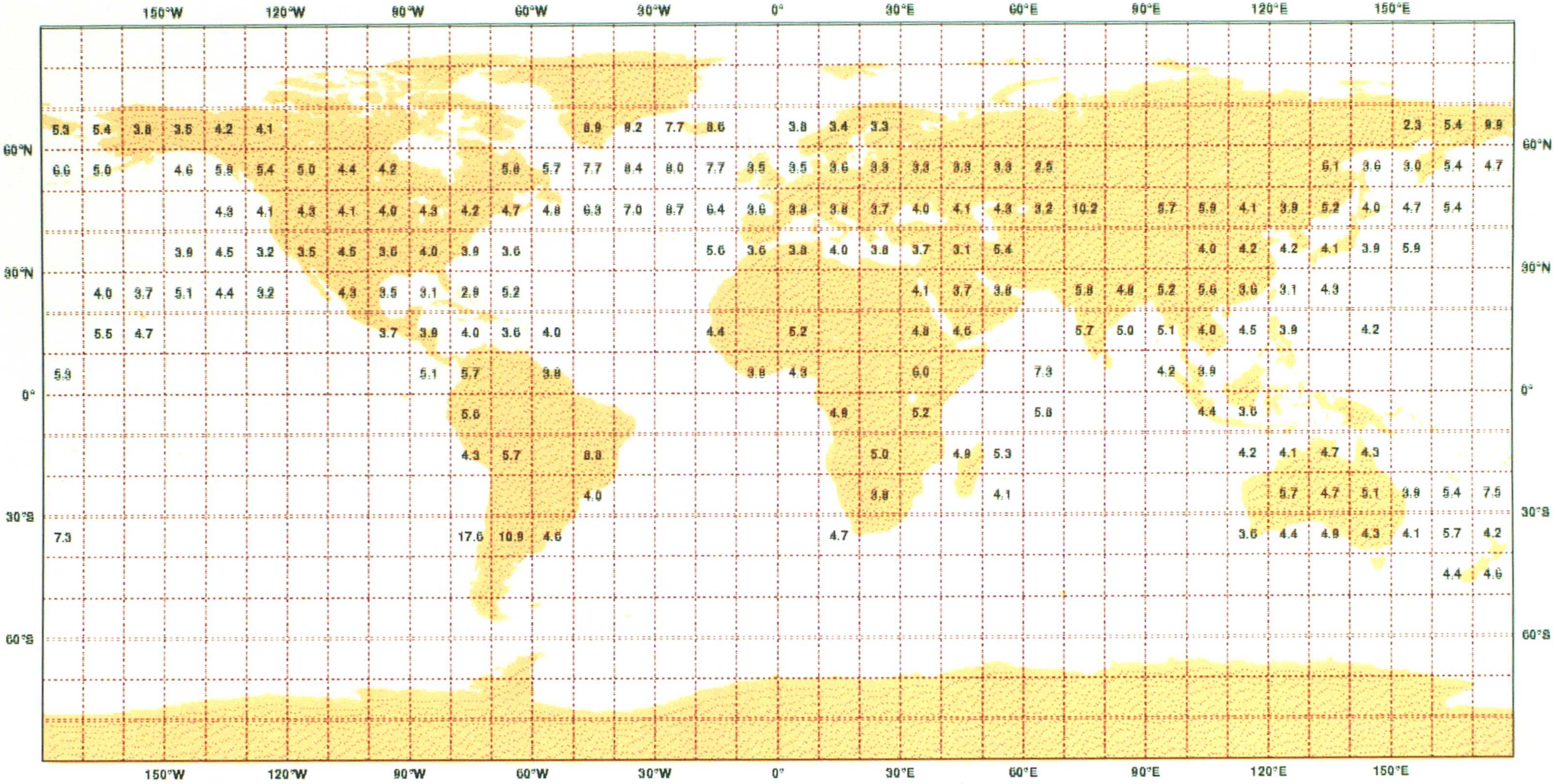

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
5.3 5.4 3.8 3.5 4.2 4.1 8.9 9.2 7.7 8.6 3.8 3.4 3.3 2.3 5.4 9.9
6.6 5.0 4.6 5.9 5.4 5.0 4.4 4.2 5.8 5.7 7.7 8.4 8.0 7.7 3.5 3.5 3.6 3.3 3.3 3.3 3.3 2.5 6.1 3.6 3.0 5.4 4.7
4.3 4.1 4.3 4.1 4.0 4.3 4.2 4.7 4.8 6.3 7.0 8.7 6.4 3.6 3.8 3.8 3.7 4.0 4.1 4.3 3.2 10.2 5.7 5.9 4.1 3.9 5.2 4.0 4.7 5.4
3.9 4.5 3.2 3.5 4.5 3.6 4.0 3.9 3.6 5.6 3.6 3.8 4.0 3.8 3.7 3.1 5.4 4.0 4.2 4.2 4.1 3.9 5.9
4.0 3.7 5.1 4.4 3.2 4.3 3.5 3.1 2.9 5.2 4.1 3.7 3.6 5.8 4.8 5.2 5.6 3.6 3.1 4.3
5.5 4.7 3.7 3.9 4.0 3.6 4.0 4.4 5.2 4.8 4.6 5.7 5.0 5.1 4.0 4.5 3.9 4.2
5.9 5.1 5.7 3.8 3.8 4.3 6.0 7.3 4.2 3.9
5.6 4.9 5.2 5.8 4.4 3.6
4.3 5.7 8.8 5.0 4.9 5.3 4.2 4.1 4.7 4.3
4.0 3.8 4.1 5.7 4.7 5.1 3.9 5.4 7.5
7.3 17.6 10.9 4.6 4.7 3.6 4.4 4.9 4.3 4.1 5.7 4.2
4.4 4.6
150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S

TABLE 5

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: EXETER
MONTH: July 2005

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:90°N - 90°S, 180°W - 180°E.
Standard of comparison		:Background field from UKMO global model.
Observation times		:00 UTC and 12 UTC.
Level(s) monitored		:Standard levels between 1000.0 - 30.0 hPa
Element monitored		:GEOPOTENTIAL HEIGHT IN metres
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period excluding those with gross errors.
	:SD	:SD of difference of observations from background values at level shown excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.
	:NUM LEVELS	:Number of levels satisfying selection criteria.
GROSS ERROR LIMITS	:Defined in Appendix I.1	
SELECTION CRITERIA	: ≥3 levels with ≥10 observations and ≥ 100 m weighted RMS.	

ONLY THE WORST LEVEL IS SHOWN WITH UNWEIGHTED RMS

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS	NUM LEVELS
23418	00	Z	200	65/ 57	30	0	46.2	111.4	120.6	8
23418	12	Z	200	65/ 57	24	0	30.2	128.9	132.4	8
26477	12	Z	1000	56/ 31	25	1	32.0	-39.4	50.7	5
27595	00	Z	100	56/ 49	17	0	104.5	-42.8	112.9	4
28275	12	Z	1000	58/ 68	30	0	31.3	-13.8	34.2	7
42101	00	Z	150	30/ 76	24	4	81.1	-158.5	178.0	8
42182	00	Z	200	29/ 77	27	1	45.3	-143.3	150.3	10
42182	12	Z	200	29/ 77	27	2	47.4	-103.3	113.7	9
42314	00	Z	150	27/ 95	21	1	73.4	-145.3	162.8	6
42314	12	Z	150	27/ 95	6	5	51.9	-213.5	219.7	6
42339	00	Z	200	26/ 73	21	1	49.3	-146.7	154.8	9
42339	12	Z	500	26/ 73	23	0	41.3	-49.0	64.1	7
42361	00	Z	200	26/ 78	13	1	121.9	-106.3	161.7	8
42369	00	Z	1000	27/ 81	1	11	0.0	-98.0	98.0	7
42379	00	Z	200	27/ 83	11	2	82.1	-111.7	138.6	5
42397	00	Z	200	27/ 88	18	1	90.4	-82.7	122.6	6
42410	00	Z	150	26/ 92	17	0	49.6	-187.2	193.7	10
42410	12	Z	200	26/ 92	10	0	50.1	-149.2	157.4	7
42492	00	Z	1000	26/ 85	17	9	23.7	-66.4	70.5	9
42492	12	Z	1000	26/ 85	15	12	20.1	-70.5	73.3	8
42647	12	Z	1000	23/ 73	24	0	38.5	-58.0	69.6	5
42667	00	Z	250	23/ 77	15	0	69.8	-41.1	81.0	4
42701	00	Z	30	23/ 85	11	0	167.0	179.9	245.4	4
42724	00	Z	150	24/ 91	23	0	89.4	-127.7	155.9	7
42724	12	Z	200	24/ 91	15	1	58.1	-121.9	135.1	5
42809	00	Z	150	23/ 88	24	1	74.3	-101.3	125.6	9
42809	12	Z	150	23/ 88	19	1	64.5	-176.9	188.3	10
42867	00	Z	150	21/ 79	16	4	100.0	-146.7	177.5	9
42867	12	Z	200	21/ 79	14	4	55.0	-137.8	148.3	8
42874	00	Z	200	21/ 82	10	0	54.7	-116.4	128.6	4
42874	12	Z	200	21/ 82	15	0	57.4	-138.6	150.0	5
42971	00	Z	1000	20/ 86	24	6	29.1	-54.0	61.3	6
42971	12	Z	1000	20/ 86	19	8	25.4	-62.4	67.3	5
43003	00	Z	1000	19/ 73	8	21	5.4	-90.0	90.2	11
43003	12	Z	1000	19/ 73	6	23	4.1	-91.5	91.6	9
43128	00	Z	150	17/ 78	17	2	48.5	-182.1	188.5	6
43128	12	Z	100	17/ 78	14	1	107.1	-109.9	153.4	7
43150	00	Z	200	18/ 83	23	0	70.3	-95.1	118.3	9
43150	12	Z	700	18/ 83	25	0	15.3	-61.4	63.3	9
43185	12	Z	150	16/ 81	16	0	102.2	-54.6	115.9	5
43192	00	Z	300	15/ 74	10	0	51.8	-86.8	101.1	5
43192	12	Z	250	15/ 74	10	0	74.9	-66.2	100.0	5
43279	00	Z	1000	13/ 80	22	0	10.6	-41.4	42.7	4
43279	12	Z	1000	13/ 80	26	0	12.9	-61.4	62.8	4
43285	00	Z	200	13/ 75	20	1	42.1	-94.3	103.3	6
43285	12	Z	150	13/ 75	13	1	103.8	-64.8	122.4	4
43295	00	Z	150	13/ 78	14	0	77.7	-123.6	146.0	5
43333	00	Z	200	12/ 93	28	0	55.9	-102.9	117.1	5
43333	12	Z	150	12/ 93	17	0	45.0	-133.8	141.1	4
43346	12	Z	400	11/ 80	23	0	59.5	52.9	79.6	9
43353	00	Z	1000	10/ 76	26	1	9.2	-86.3	86.8	6
43353	12	Z	1000	10/ 76	20	7	6.7	-88.7	89.0	7
43369	00	Z	200	8/ 73	10	4	36.4	-164.0	168.0	7
43369	12	Z	400	8/ 73	19	0	63.7	-18.1	66.2	4
43371	00	Z	100	8/ 77	20	4	73.2	-198.0	211.1	9
43371	12	Z	150	8/ 77	25	0	98.3	-64.5	117.6	7
47058	00	Z	1000	39/ 126	11	15	21.8	-69.9	73.2	4
78866	00	Z	850	18/ -63	7	3	44.1	12.7	45.9	4

78866	12	Z	850	18/ -63	19	2	42.5	2.7	42.6	4
84416	12	Z	850	-5/ -81	10	0	7.0	74.9	75.2	10
96163	00	Z	1000	-1/ 100	9	3	26.9	-80.6	84.9	7
97180	00	Z	200	-5/ 120	9	0	81.6	-66.1	105.0	5

Figure 8. TEMP 500 hPa geopotential mean daily count. JULY 2005
All hours
Global average number of observations in 24 hours = 1205

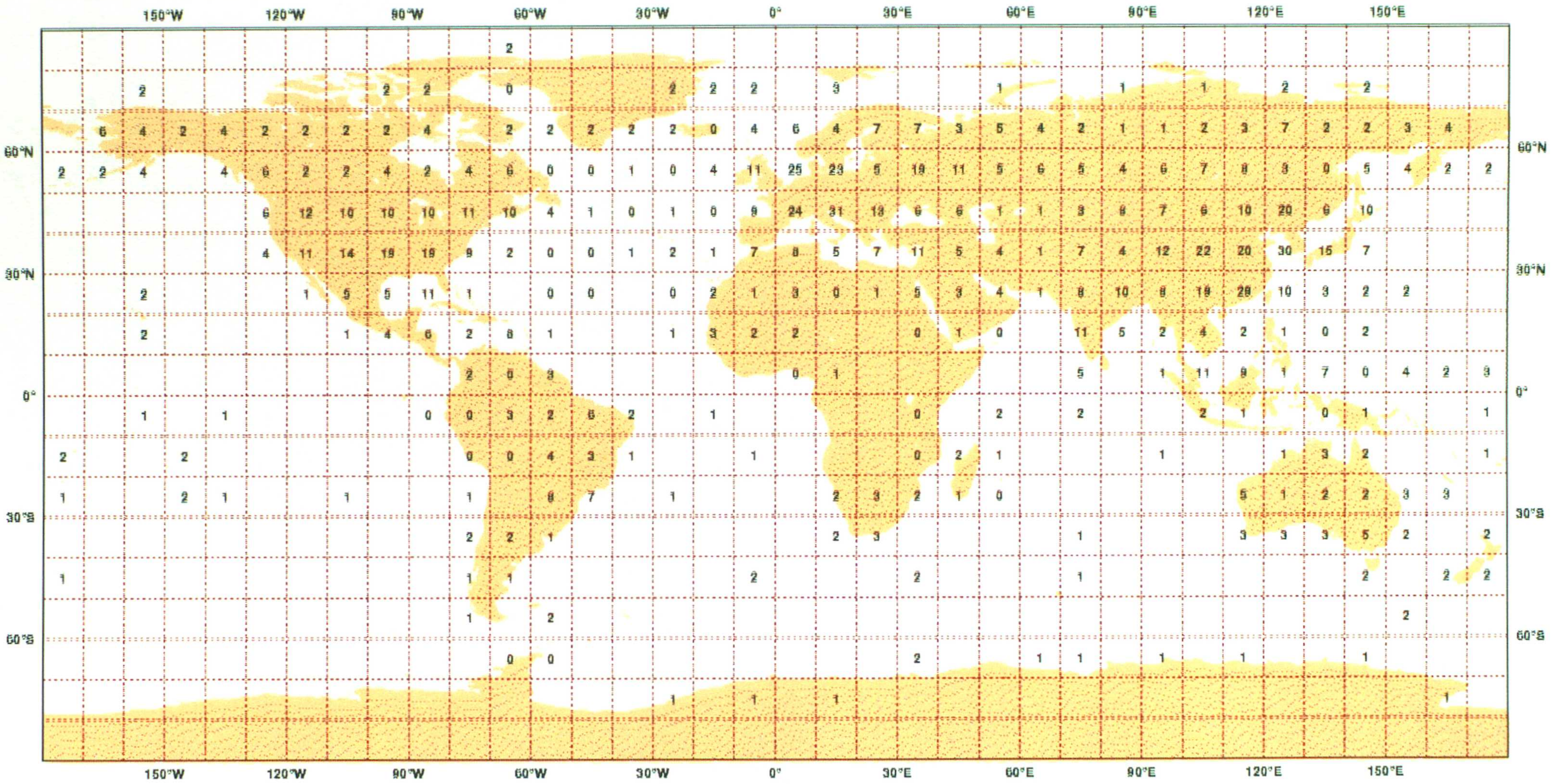

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
2
2 2 2 0 2 2 2 3 1 1 1 2 2
6 4 2 4 2 2 2 2 4 2 2 2 2 2 0 4 6 4 7 7 3 5 4 2 1 1 2 3 7 2 2 3 4
2 2 4 4 6 2 2 4 2 4 6 0 0 1 0 4 11 25 23 5 19 11 5 6 5 4 6 7 8 3 0 5 4 2 2
6 12 10 10 10 11 10 4 1 0 1 0 9 24 31 13 6 6 1 1 3 8 7 6 10 20 6 10
4 11 14 19 19 9 2 0 0 1 2 1 7 8 5 7 11 5 4 1 7 4 12 22 20 30 15 7
2 1 5 5 11 1 0 0 0 2 1 3 0 1 5 3 4 1 8 10 8 19 29 10 3 2 2
2 1 4 6 2 8 1 1 3 2 2 0 1 0 11 5 2 4 2 1 0 2
2 0 3 0 1 5 1 11 9 1 7 0 4 2 3
1 1 0 0 3 2 6 2 1 0 2 2 2 1 0 1 1
2 2 0 0 4 3 1 1 0 2 1 1 1 3 2 1
1 2 1 1 1 8 7 1 2 3 2 1 0 5 1 2 2 3 3
2 2 1 2 3 1 3 3 3 5 2 2
1 1 1 2 2 1 2 2 2
1 2 2
0 0 2 1 1 1 1 1
1 1 1 1

TABLE 6

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: EXETER
MONTH: July 2005

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:90°N - 90°S, 180°W - 180°E.
Standard of comparison		:Background field from UKMO global model.
Observation times		:00 UTC and 12 UTC.
Level(s) monitored		:Standard levels between 1000.0 - 100.0 hPa
Element monitored		:VECTOR WIND in m s^{-1}
Parameters monitored		
	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period excluding those with gross errors.
	:UBIAS,VBIAS	:Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.
	:NUM LEVELS	:Number of levels satisfying selection criteria.
GROSS ERROR LIMITS	:Defined in Appendix I.2	
SELECTION CRITERIA	: ≥ 10 observations and ≥ 15 m s^{-1} RMS vector wind.	

ONLY THE STANDARD LEVEL BETWEEN 1000 - 100 hPa WITH HIGHEST RMS IS SHOWN

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	% REJ	UBIAS	VBIAS	RMS	LEVELS
08001	12	V	200	43/ -8	22	0	27	-10.7	-7.8	16.2	2
08023	00	V	200	43/ -4	19	0	31	-9.5	-10.5	22.1	3
43346	00	V	100	11/ 80	13	0	69	12.6	1.9	16.2	1
43369	00	V	150	8/ 73	10	0	100	3.1	9.7	18.8	1
43369	12	V	200	8/ 73	13	0	100	10.7	1.8	17.7	1
43371	00	V	100	8/ 77	16	0	56	15.1	4.3	17.3	1
43371	12	V	100	8/ 77	17	0	64	11.8	3.6	17.5	1
43599	12	V	100	-1/ 73	28	0	78	20.8	2.1	24.1	1
48407	12	V	100	15/ 105	23	0	100	12.0	7.3	17.6	1
48568	12	V	150	7/ 101	14	0	100	-1.2	11.9	17.4	1
61967	12	V	100	-7/ 72	13	0	100	11.2	-0.2	15.9	1
63894	12	V	150	-7/ 39	11	0	18	8.0	5.9	20.6	1
64458	12	V	150	2/ 16	15	0	100	10.0	2.5	19.9	2
64910	12	V	100	4/ 10	10	0	100	9.5	-1.5	19.9	2
68174	12	V	200	-24/ 29	11	0	100	-3.0	-2.3	15.8	1
68442	12	V	250	-29/ 26	13	0	100	-12.1	-3.1	19.1	2
68461	12	V	300	-28/ 28	15	1	100	0.6	2.6	17.4	1
89009	00	V	300	-90/ 0	30	0	100	0.8	-15.2	20.9	4
94653	12	V	100	-32/ 134	22	0	13	13.1	-1.3	17.0	1
94672	12	V	250	-35/ 139	29	0	3	-5.6	0.3	32.6	1
96035	00	V	150	4/ 99	12	0	100	1.4	4.1	15.2	1

Figure 9. TEMP/PILOT 300 hPa wind mean daily count. JULY 2005
All hours
Global average number of observations in 24 hours = 1327

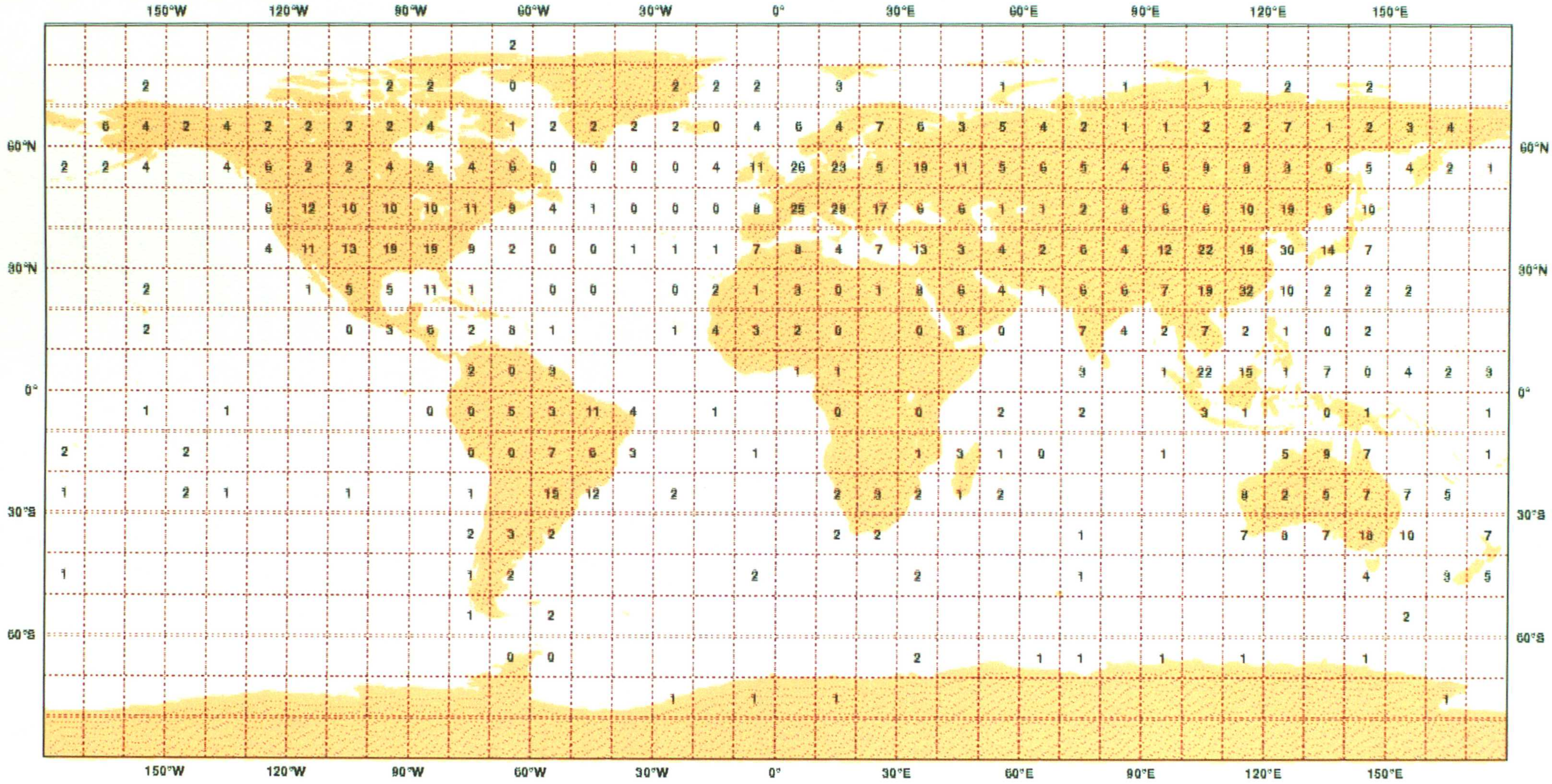

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S

TABLE 7

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: EXETER
MONTH: July 2005

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from UKMO global model.

Observation times :00 UTC and 12 UTC.

Level(s) monitored :Standard levels between 500.0 - 150.0 hPa

Element monitored :WIND DIRECTION in degrees

Parameters monitored

:NUM OBS :Average number of observations at all levels.

:BIAS :Mean difference of observations from background values from all levels.

:MAX SPREAD :(For observation - background values) Maximum absolute difference of SD at any level from SD at all levels

:SD :SD of difference of observations from background values at all levels.

SELECTION CRITERIA :NUM OBS ≥ 5, and
ABSOLUTE BIAS ≥ 10°, with
SD < 30°, and
MAX SPREAD < 10°

WMO IDENT	OBS TIME	ELM	LAT/LONG	NUM OBS	BIAS	MAX SPREAD	SD
08594	12	DD	17/ -23	19	12.4	9.9	22.7
22550	00	DD	65/ 41	26	10.6	5.2	14.0
33791	12	DD	48/ 33	22	-12.8	3.9	9.6
34731	00	DD	47/ 40	23	13.9	8.7	15.2
34731	12	DD	47/ 40	20	13.8	3.8	11.1
41112	12	DD	18/ 43	9	-11.7	8.7	10.9
42182	12	DD	29/ 77	11	19.7	8.0	19.1
56739	12	DD	25/ 98	20	10.4	9.6	19.0
56964	12	DD	23/ 101	19	10.0	4.8	15.6
58968	12	DD	25/ 122	16	17.3	3.7	16.2
61995	12	DD	-20/ 58	22	-10.6	9.4	18.3
62337	00	DD	31/ 34	23	-25.9	3.9	10.9
68461	12	DD	-28/ 28	11	-12.4	8.0	24.4
96471	00	DD	6/ 116	23	10.8	3.4	21.7

MONITORING OF SATELLITE WINDS

MONITORING CENTRE: EXETER

MONTH: July 2005

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from GOES-9, GOES-10, GOES-12, METEOSAT-5, METEOSAT-7

Standard of comparison :Background field from UKMO global model.

Selection Criteria :number of observations > 10.

Data Extracted :Layer 701 - 1000 hPa
401 - 700 hPa
101 - 400 hPa

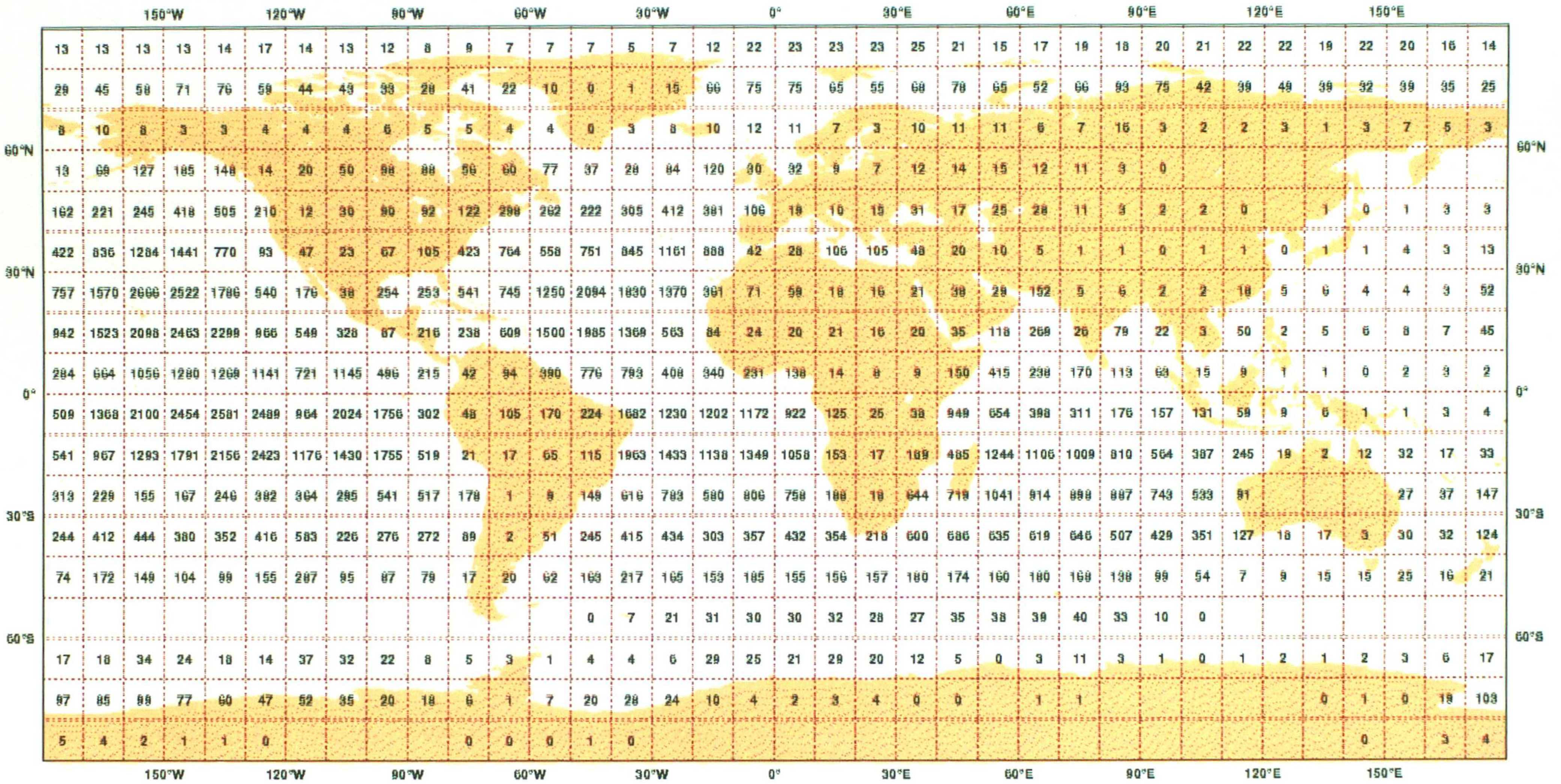
:Mean wind

:Mean observation minus background vector wind differences

:Mean observation minus background speed differences

:RMS of observation minus background vector differences

Figure 10. SATOB 701 - 1000 hPa mean daily count. JULY 2005
Global average number of observations in 24 hours = 154476



13	13	13	13	14	17	14	13	12	8	9	7	7	7	5	7	12	22	23	23	23	25	21	15	17	19	18	20	21	22	22	19	22	20	16	14
29	45	58	71	76	59	44	43	33	28	41	22	10	0	1	15	66	75	75	65	55	68	78	65	52	66	93	75	42	39	49	39	32	39	35	25
8	10	8	3	3	4	4	4	6	5	5	4	4	0	3	8	10	12	11	7	3	10	11	11	6	7	16	3	2	2	3	1	3	7	5	3
19	69	127	185	148	14	20	50	98	88	56	60	77	37	28	84	120	80	92	9	7	12	14	15	12	11	3	0								
162	221	245	418	505	210	12	30	90	92	122	299	262	222	305	412	381	106	19	10	15	31	17	25	28	11	3	2	2	0		1	0	1	3	3
422	836	1284	1441	770	93	47	23	67	105	423	764	558	751	845	1161	888	42	28	106	105	48	20	10	5	1	1	0	1	1	0	1	1	4	3	13
757	1570	2666	2522	1786	540	176	38	254	253	541	745	1250	2094	1830	1370	381	71	59	18	16	21	38	29	152	5	6	2	2	18	5	6	4	4	9	52
942	1523	2098	2463	2299	966	549	328	67	216	238	609	1500	1985	1369	563	84	24	20	21	16	20	35	118	269	26	79	22	3	50	2	5	6	8	7	45
284	664	1056	1280	1269	1141	721	1145	496	215	42	94	380	776	793	408	340	231	138	14	8	9	150	415	238	170	113	69	15	9	1	1	0	2	3	2
509	1368	2100	2454	2581	2489	964	2024	1756	302	48	105	170	224	1682	1230	1202	1172	922	125	25	38	949	654	398	311	176	157	131	59	9	6	1	1	3	4
541	967	1293	1791	2156	2423	1176	1430	1755	519	21	17	65	115	1963	1433	1138	1349	1058	153	17	169	485	1244	1106	1009	810	564	387	245	19	2	12	32	17	33
313	229	155	167	246	382	364	285	541	517	178	1	9	149	616	793	580	806	758	188	18	644	719	1041	914	898	887	743	533	91				27	37	147
244	412	444	380	352	416	583	226	276	272	89	2	51	245	415	434	303	357	432	354	218	600	686	635	619	646	507	429	351	127	18	17	3	30	32	124
74	172	149	104	99	155	287	95	87	79	17	20	62	169	217	165	153	185	155	156	157	180	174	160	180	169	138	99	54	7	9	15	15	25	16	21
													0	7	21	31	30	30	32	28	27	35	38	39	40	33	10	0							
17	18	34	24	18	14	37	32	22	8	5	3	1	4	4	6	29	25	21	29	20	12	5	0	3	11	3	1	0	1	2	1	2	3	6	17
87	85	88	77	60	47	52	35	20	18	6	1	7	20	28	24	10	4	2	3	4	0	0		1	1						0	1	0	19	103
5	4	2	1	1	0					0	0	0	1	0																		0		3	4

Figure 11. SATOB 701 - 1000 hPa vector mean wind. JULY 2005
All observations
Arrows are plotted where greater than 10 obs are present

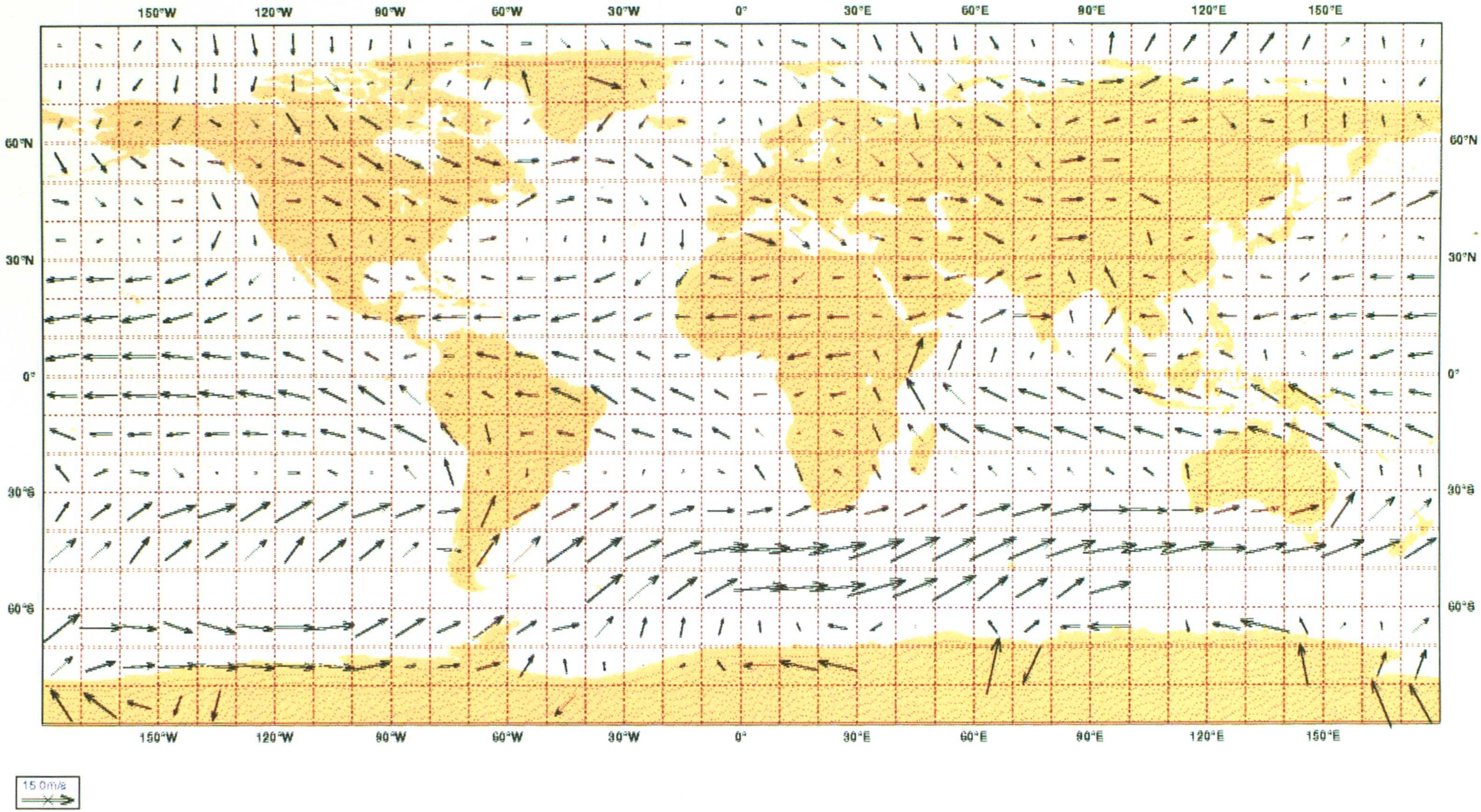

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
15.0m/s

Figure 12. SATOB 701 - 1000 hPa mean vector wind differences. JULY 2005
All observations
Arrows are plotted where greater than 10 obs are present

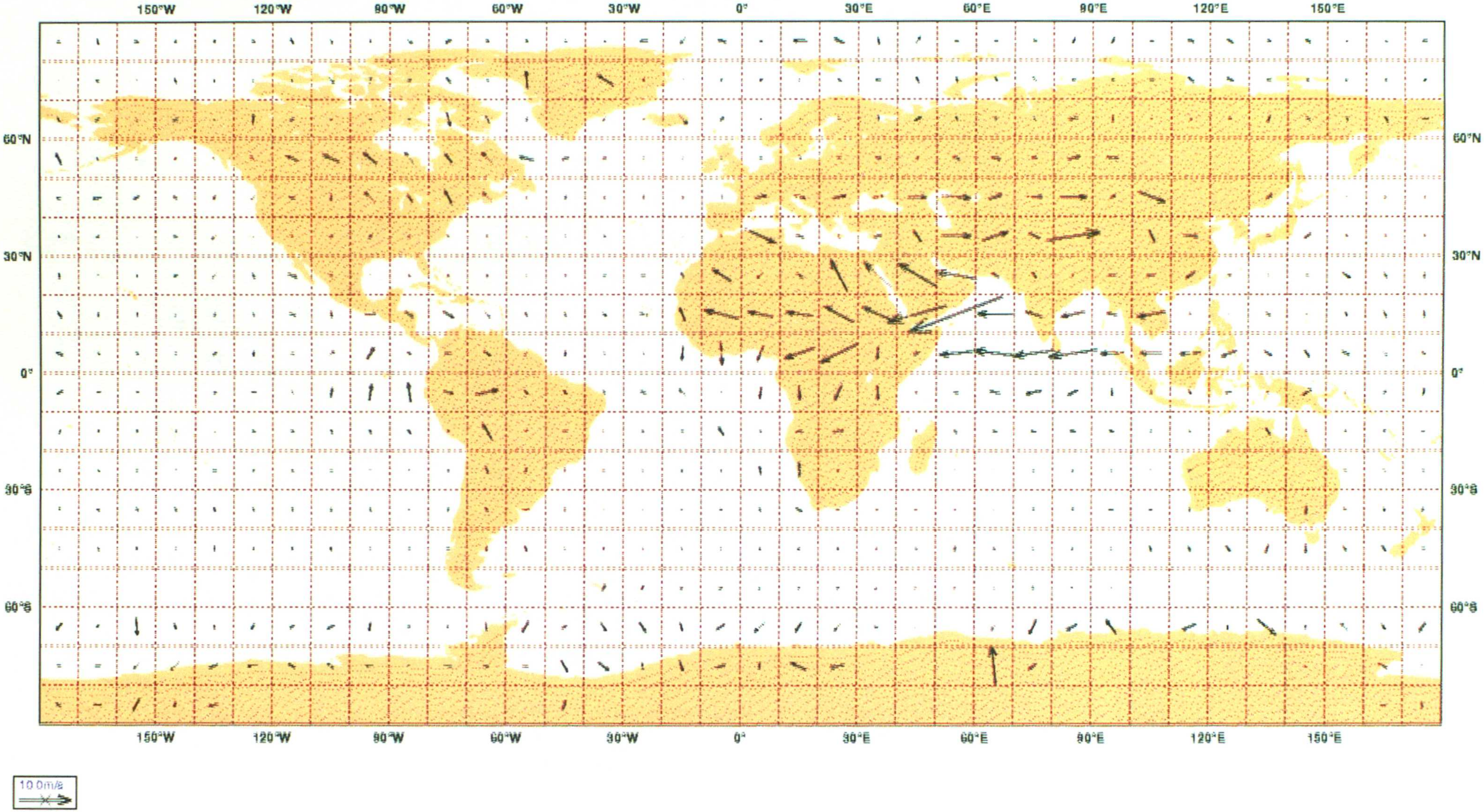
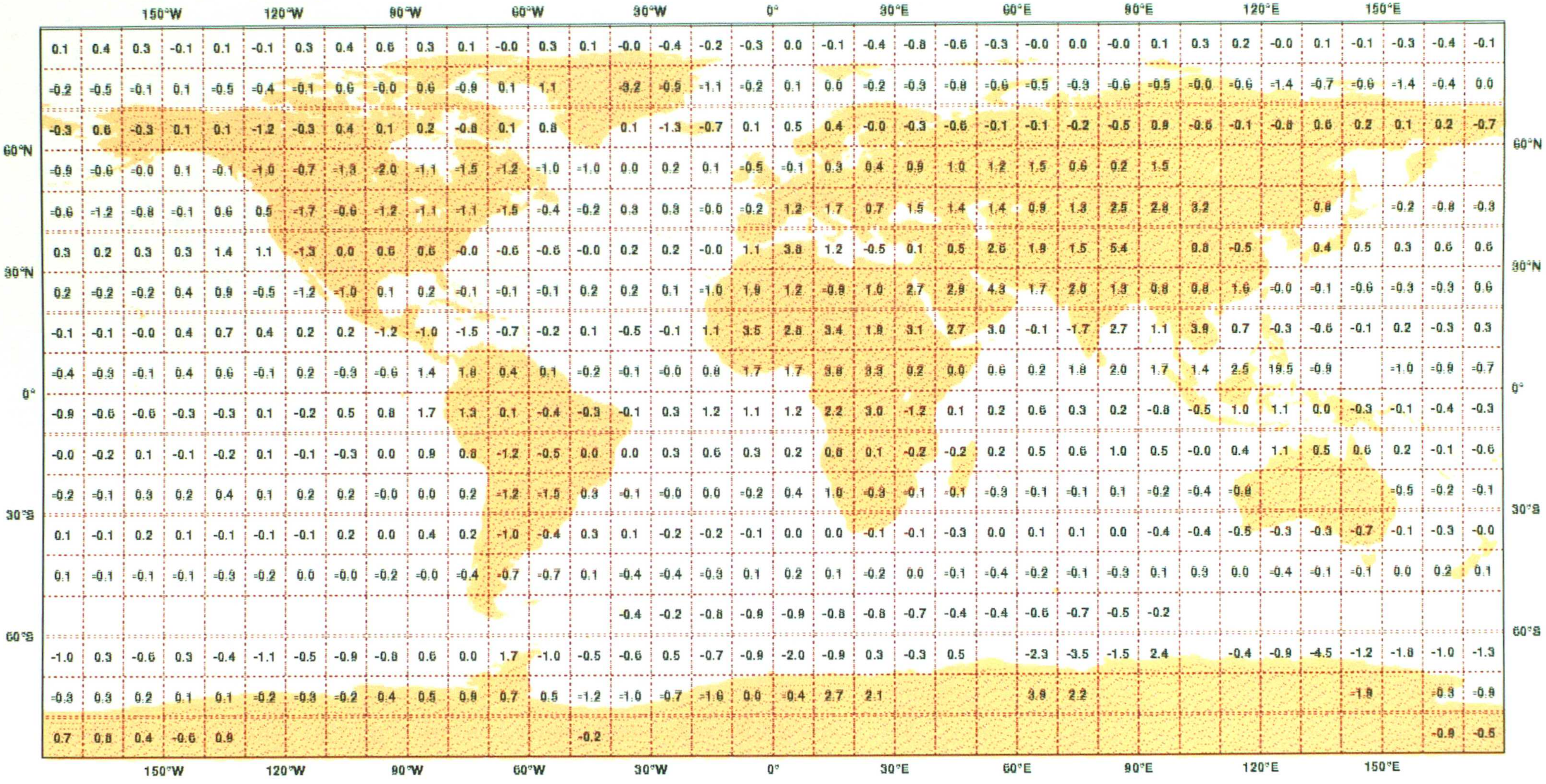
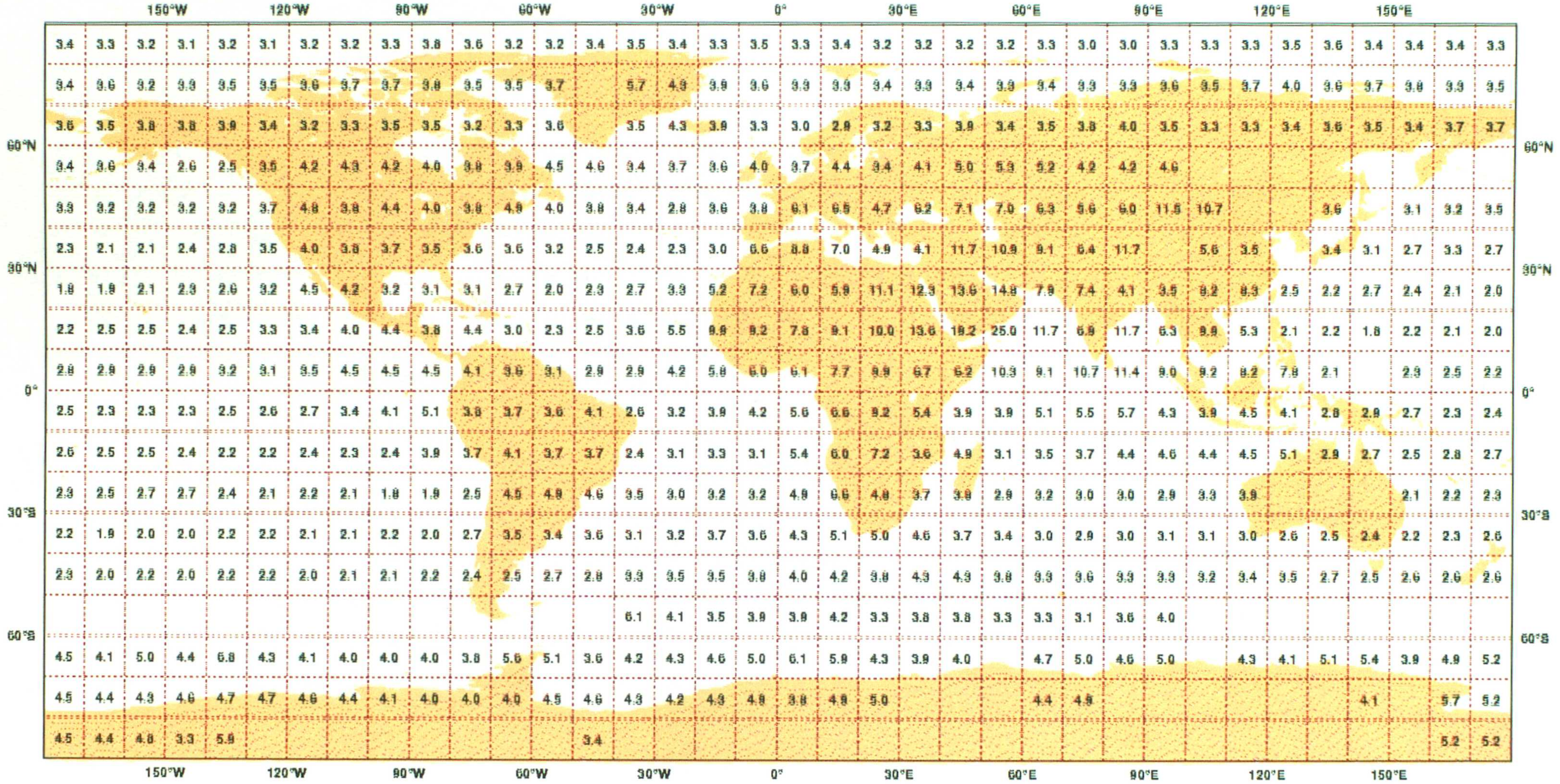

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
10.0m/s

Figure 13. SATOB 701 - 1000 hPa mean O-B speed differences (ms-1). JULY 2005
All observations
Values are plotted where greater than 10 obs are present



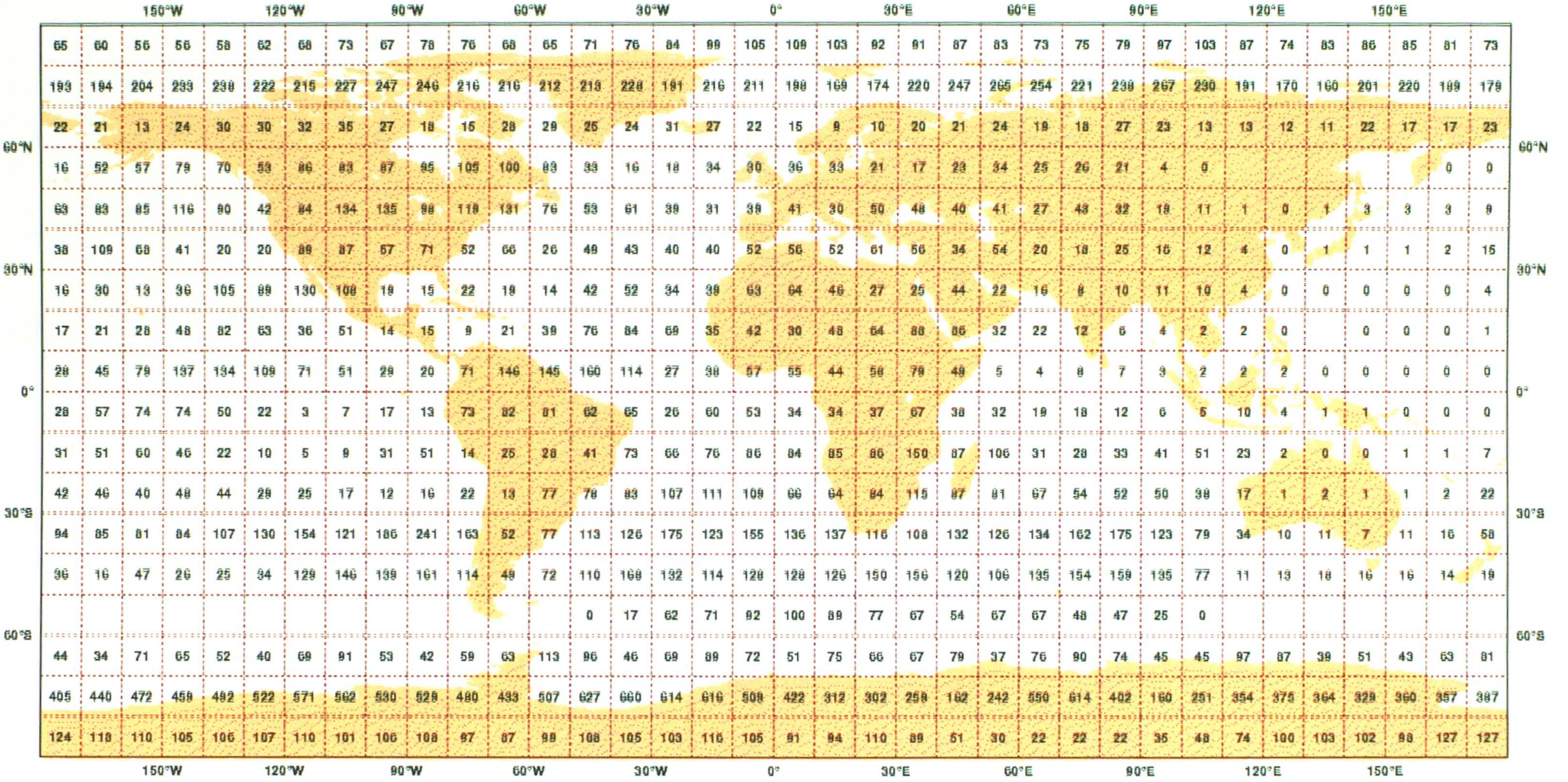
0.1	0.4	0.3	-0.1	0.1	-0.1	0.3	0.4	0.6	0.3	0.1	-0.0	0.3	0.1	-0.0	-0.4	-0.2	-0.3	0.0	-0.1	-0.4	-0.8	-0.6	-0.3	-0.0	0.0	-0.0	0.1	0.3	0.2	-0.0	0.1	-0.1	-0.3	-0.4	-0.1
-0.2	-0.5	-0.1	0.1	-0.5	-0.4	-0.1	0.6	-0.0	0.6	-0.9	0.1	1.1		-3.2	-0.5	-1.1	-0.2	0.1	0.0	-0.2	-0.3	-0.8	-0.6	-0.5	-0.3	-0.6	-0.5	-0.0	-0.6	-1.4	-0.7	-0.6	-1.4	-0.4	0.0
-0.3	0.6	-0.3	0.1	0.1	-1.2	-0.3	0.4	0.1	0.2	-0.8	0.1	0.8		0.1	-1.3	-0.7	0.1	0.5	0.4	-0.0	-0.3	-0.6	-0.1	-0.1	-0.2	-0.5	0.9	-0.6	-0.1	-0.8	0.6	0.2	0.1	0.2	-0.7
-0.9	-0.6	-0.0	0.1	-0.1	-1.0	-0.7	-1.3	-2.0	-1.1	-1.5	-1.2	-1.0	-1.0	0.0	0.2	0.1	-0.5	-0.1	0.3	0.4	0.9	1.0	1.2	1.5	0.6	0.2	1.5								
-0.6	-1.2	-0.8	-0.1	0.6	0.5	-1.7	-0.6	-1.2	-1.1	-1.1	-1.5	-0.4	-0.2	0.3	0.3	-0.0	-0.2	1.2	1.7	0.7	1.5	1.4	1.4	0.9	1.3	2.5	2.8	3.2			0.8		-0.2	-0.8	-0.3
0.3	0.2	0.3	0.3	1.4	1.1	-1.3	0.0	0.6	0.6	-0.0	-0.6	-0.6	-0.0	0.2	0.2	-0.0	1.1	3.8	1.2	-0.5	0.1	0.5	2.6	1.9	1.5	5.4		0.8	-0.5		0.4	0.5	0.3	0.6	0.6
0.2	-0.2	-0.2	0.4	0.9	-0.5	-1.2	-1.0	0.1	0.2	-0.1	-0.1	-0.1	0.2	0.2	0.1	-1.0	1.9	1.2	-0.9	1.0	2.7	2.9	4.3	1.7	2.0	1.3	0.8	0.8	1.6	-0.0	-0.1	-0.6	-0.3	-0.3	0.6
-0.1	-0.1	-0.0	0.4	0.7	0.4	0.2	0.2	-1.2	-1.0	-1.5	-0.7	-0.2	0.1	-0.5	-0.1	1.1	3.5	2.8	3.4	1.9	3.1	2.7	3.0	-0.1	-1.7	2.7	1.1	3.9	0.7	-0.3	-0.6	-0.1	0.2	-0.3	0.3
-0.4	-0.3	-0.1	0.4	0.6	-0.1	0.2	-0.3	-0.6	1.4	1.8	0.4	0.1	-0.2	-0.1	-0.0	0.8	1.7	1.7	3.8	3.3	0.2	0.0	0.6	0.2	1.8	2.0	1.7	1.4	2.5	19.5	-0.9		-1.0	-0.9	-0.7
-0.9	-0.6	-0.6	-0.3	-0.3	0.1	-0.2	0.5	0.8	1.7	1.3	0.1	-0.4	-0.3	-0.1	0.3	1.2	1.1	1.2	2.2	3.0	-1.2	0.1	0.2	0.6	0.3	0.2	-0.8	-0.5	1.0	1.1	0.0	-0.3	-0.1	-0.4	-0.3
-0.0	-0.2	0.1	-0.1	-0.2	0.1	-0.1	-0.3	0.0	0.9	0.8	-1.2	-0.5	0.0	0.0	0.3	0.6	0.3	0.2	0.6	0.1	-0.2	-0.2	0.2	0.5	0.6	1.0	0.5	-0.0	0.4	1.1	0.5	0.6	0.2	-0.1	-0.6
-0.2	-0.1	0.3	0.2	0.4	0.1	0.2	0.2	-0.0	0.0	0.2	-1.2	-1.5	0.3	-0.1	-0.0	0.0	-0.2	0.4	1.0	-0.3	-0.1	-0.1	-0.3	-0.1	-0.1	0.1	-0.2	-0.4	-0.8				-0.5	-0.2	-0.1
0.1	-0.1	0.2	0.1	-0.1	-0.1	-0.1	0.2	0.0	0.4	0.2	-1.0	-0.4	0.3	0.1	-0.2	-0.2	-0.1	0.0	0.0	-0.1	-0.1	-0.3	0.0	0.1	0.1	0.0	-0.4	-0.4	-0.5	-0.3	-0.3	-0.7	-0.1	-0.3	-0.0
0.1	-0.1	-0.1	-0.1	-0.3	-0.2	0.0	-0.0	-0.2	-0.0	-0.4	-0.7	-0.7	0.1	-0.4	-0.4	-0.3	0.1	0.2	0.1	-0.2	0.0	-0.1	-0.4	-0.2	-0.1	-0.3	0.1	0.3	0.0	-0.4	-0.1	-0.1	0.0	0.2	0.1
														-0.4	-0.2	-0.8	-0.9	-0.9	-0.8	-0.8	-0.7	-0.4	-0.4	-0.6	-0.7	-0.5	-0.2								
-1.0	0.3	-0.6	0.3	-0.4	-1.1	-0.5	-0.9	-0.8	0.6	0.0	1.7	-1.0	-0.5	-0.6	0.5	-0.7	-0.9	-2.0	-0.9	0.3	-0.3	0.5		-2.3	-3.5	-1.5	2.4		-0.4	-0.9	-4.5	-1.2	-1.8	-1.0	-1.3
-0.3	0.3	0.2	0.1	0.1	-0.2	-0.3	-0.2	0.4	0.5	0.9	0.7	0.5	-1.2	-1.0	-0.7	-1.6	0.0	-0.4	2.7	2.1				3.9	2.2							-1.9		-0.3	-0.9
0.7	0.8	0.4	-0.6	0.9									-0.2																					-0.9	-0.5

Figure 14. SATOB 701 - 1000 hPa mean RMS O-B vector differences (ms-1). JULY 2005
All observations
Values are plotted where greater than 10 obs are present



3.4	3.3	3.2	3.1	3.2	3.1	3.2	3.2	3.3	3.8	3.6	3.2	3.2	3.4	3.5	3.4	3.3	3.5	3.3	3.4	3.2	3.2	3.2	3.2	3.3	3.0	3.0	3.3	3.3	3.3	3.5	3.6	3.4	3.4	3.4	3.3
3.4	3.6	3.2	3.3	3.5	3.5	3.6	3.7	3.7	3.8	3.5	3.5	3.7		5.7	4.3	3.9	3.6	3.3	3.3	3.4	3.3	3.4	3.3	3.4	3.3	3.3	3.6	3.5	3.7	4.0	3.6	3.7	3.8	3.3	3.5
3.6	3.5	3.8	3.8	3.9	3.4	3.2	3.3	3.5	3.5	3.2	3.3	3.6		3.5	4.3	3.9	3.3	3.0	2.9	3.2	3.3	3.9	3.4	3.5	3.8	4.0	3.5	3.3	3.3	3.4	3.6	3.5	3.4	3.7	3.7
3.4	3.6	3.4	2.6	2.5	3.5	4.2	4.3	4.2	4.0	3.8	3.9	4.5	4.6	3.4	3.7	3.6	4.0	3.7	4.4	3.4	4.1	5.0	5.3	5.2	4.2	4.2	4.6								
3.3	3.2	3.2	3.2	3.2	3.7	4.8	3.8	4.4	4.0	3.8	4.8	4.0	3.8	3.4	2.8	3.6	3.8	6.1	6.5	4.7	6.2	7.1	7.0	6.3	5.6	6.0	11.5	10.7			3.6		3.1	3.2	3.5
2.3	2.1	2.1	2.4	2.8	3.5	4.0	3.8	3.7	3.5	3.6	3.6	3.2	2.5	2.4	2.3	3.0	6.6	8.8	7.0	4.9	4.1	11.7	10.9	9.1	6.4	11.7		5.6	3.5		3.4	3.1	2.7	3.3	2.7
1.8	1.9	2.1	2.3	2.6	3.2	4.5	4.2	3.2	3.1	3.1	2.7	2.0	2.3	2.7	3.3	5.2	7.2	6.0	5.9	11.1	12.3	13.6	14.8	7.9	7.4	4.1	3.5	9.2	8.3	2.5	2.2	2.7	2.4	2.1	2.0
2.2	2.5	2.5	2.4	2.5	3.3	3.4	4.0	4.4	3.8	4.4	3.0	2.3	2.5	3.6	5.5	9.9	9.2	7.8	9.1	10.0	13.6	19.2	25.0	11.7	6.9	11.7	6.3	9.9	5.3	2.1	2.2	1.8	2.2	2.1	2.0
2.9	2.9	2.9	2.9	3.2	3.1	3.5	4.5	4.5	4.5	4.1	3.6	3.1	2.9	2.9	4.2	5.8	6.0	6.1	7.7	9.9	6.7	6.2	10.3	9.1	10.7	11.4	9.0	9.2	8.2	7.8	2.1		2.9	2.5	2.2
2.5	2.3	2.3	2.3	2.5	2.6	2.7	3.4	4.1	5.1	3.8	3.7	3.6	4.1	2.6	3.2	3.9	4.2	5.6	6.6	9.2	5.4	3.9	3.9	5.1	5.5	5.7	4.3	3.9	4.5	4.1	2.8	2.9	2.7	2.3	2.4
2.6	2.5	2.5	2.4	2.2	2.2	2.4	2.3	2.4	3.9	3.7	4.1	3.7	3.7	2.4	3.1	3.3	3.1	5.4	6.0	7.2	3.6	4.9	3.1	3.5	3.7	4.4	4.6	4.4	4.5	5.1	2.9	2.7	2.5	2.8	2.7
2.3	2.5	2.7	2.7	2.4	2.1	2.2	2.1	1.8	1.9	2.5	4.5	4.9	4.6	3.5	3.0	3.2	3.2	4.9	6.6	4.8	3.7	3.8	2.9	3.2	3.0	3.0	2.9	3.3	3.9				2.1	2.2	2.3
2.2	1.9	2.0	2.0	2.2	2.2	2.1	2.1	2.2	2.0	2.7	3.5	3.4	3.6	3.1	3.2	3.7	3.6	4.3	5.1	5.0	4.6	3.7	3.4	3.0	2.9	3.0	3.1	3.1	3.0	2.6	2.5	2.4	2.2	2.3	2.6
2.3	2.0	2.2	2.0	2.2	2.2	2.0	2.1	2.1	2.2	2.4	2.5	2.7	2.8	3.3	3.5	3.5	3.8	4.0	4.2	3.8	4.3	4.3	3.8	3.3	3.6	3.3	3.3	3.2	3.4	3.5	2.7	2.5	2.6	2.6	2.6
														6.1	4.1	3.5	3.9	3.9	4.2	3.3	3.8	3.8	3.3	3.3	3.1	3.6	4.0								
4.5	4.1	5.0	4.4	6.8	4.3	4.1	4.0	4.0	4.0	3.8	5.6	5.1	3.6	4.2	4.3	4.6	5.0	6.1	5.9	4.3	3.9	4.0		4.7	5.0	4.6	5.0		4.3	4.1	5.1	5.4	3.9	4.9	5.2
4.5	4.4	4.3	4.6	4.7	4.7	4.6	4.4	4.1	4.0	4.0	4.0	4.5	4.6	4.3	4.2	4.3	4.9	3.8	4.9	5.0				4.4	4.9							4.1		5.7	5.2
4.5	4.4	4.8	3.3	5.9									3.4																					5.2	5.2

Figure 15. SATOB 401 - 700 hPa mean daily count. JULY 2005
Global average number of observations in 24 hours = 53584



65	60	56	56	58	62	68	73	67	78	76	68	65	71	76	84	99	105	109	103	92	91	87	83	73	75	79	97	103	87	74	83	86	85	81	73
199	184	204	233	238	222	215	227	247	246	216	216	212	213	228	191	216	211	198	169	174	220	247	265	254	221	238	267	230	191	170	160	201	220	189	179
22	21	13	24	30	30	32	35	27	18	15	28	29	25	24	31	27	22	15	9	10	20	21	24	19	18	27	23	13	13	12	11	22	17	17	23
16	52	57	79	70	53	86	83	87	95	105	100	89	33	16	18	34	30	36	33	21	17	23	34	25	26	21	4	0						0	0
63	83	85	116	90	42	84	134	135	98	119	131	76	53	61	39	31	39	41	30	50	48	40	41	27	43	32	18	11	1	0	1	3	3	3	9
38	109	68	41	20	20	89	87	57	71	52	66	26	49	43	40	40	52	56	52	61	56	34	54	20	18	25	16	12	4	0	1	1	1	2	15
16	30	13	36	105	89	130	109	19	15	22	19	14	42	52	34	38	63	64	46	27	25	44	22	16	8	10	11	10	4	0	0	0	0	0	4
17	21	28	48	82	63	36	51	14	15	9	21	39	76	84	69	35	42	30	48	64	88	86	32	22	12	6	4	2	2	0		0	0	0	1
28	45	78	137	134	109	71	51	29	20	71	146	145	160	114	27	38	57	55	44	58	78	49	5	4	8	7	9	2	2	2	0	0	0	0	0
28	57	74	74	50	22	3	7	17	13	73	82	81	62	65	26	60	53	34	34	37	67	38	32	19	18	12	6	5	10	4	1	1	0	0	0
31	51	60	46	22	10	5	9	31	51	14	25	28	41	73	66	76	86	84	85	86	150	87	106	31	28	33	41	51	23	2	0	0	1	1	7
42	46	40	48	44	29	25	17	12	16	22	13	77	78	83	107	111	109	66	64	84	115	87	81	67	54	52	50	38	17	1	2	1	1	2	22
94	85	81	84	107	130	154	121	186	241	163	52	77	113	126	175	123	155	136	137	116	108	132	126	134	162	175	123	79	34	10	11	7	11	16	58
96	16	47	26	25	34	129	146	199	161	114	49	72	110	168	132	114	128	128	126	150	156	120	106	135	154	159	135	77	11	13	18	16	16	14	19
													0	17	62	71	92	100	89	77	67	54	67	67	48	47	25	0							
44	34	71	65	52	40	69	91	53	42	59	63	113	96	46	69	89	72	51	75	66	67	79	37	76	90	74	45	45	97	87	39	51	43	63	81
405	440	472	459	482	522	571	562	530	529	480	433	507	627	660	614	616	509	422	312	302	259	162	242	550	614	402	160	251	354	375	364	329	360	357	387
124	118	110	105	106	107	110	101	106	108	87	87	98	108	105	103	116	105	91	94	110	89	51	30	22	22	22	35	48	74	100	103	102	98	127	127

Figure 16. SATOB 401 - 700 hPa vector mean wind. JULY 2005
All observations
Arrows are plotted where greater than 10 obs are present

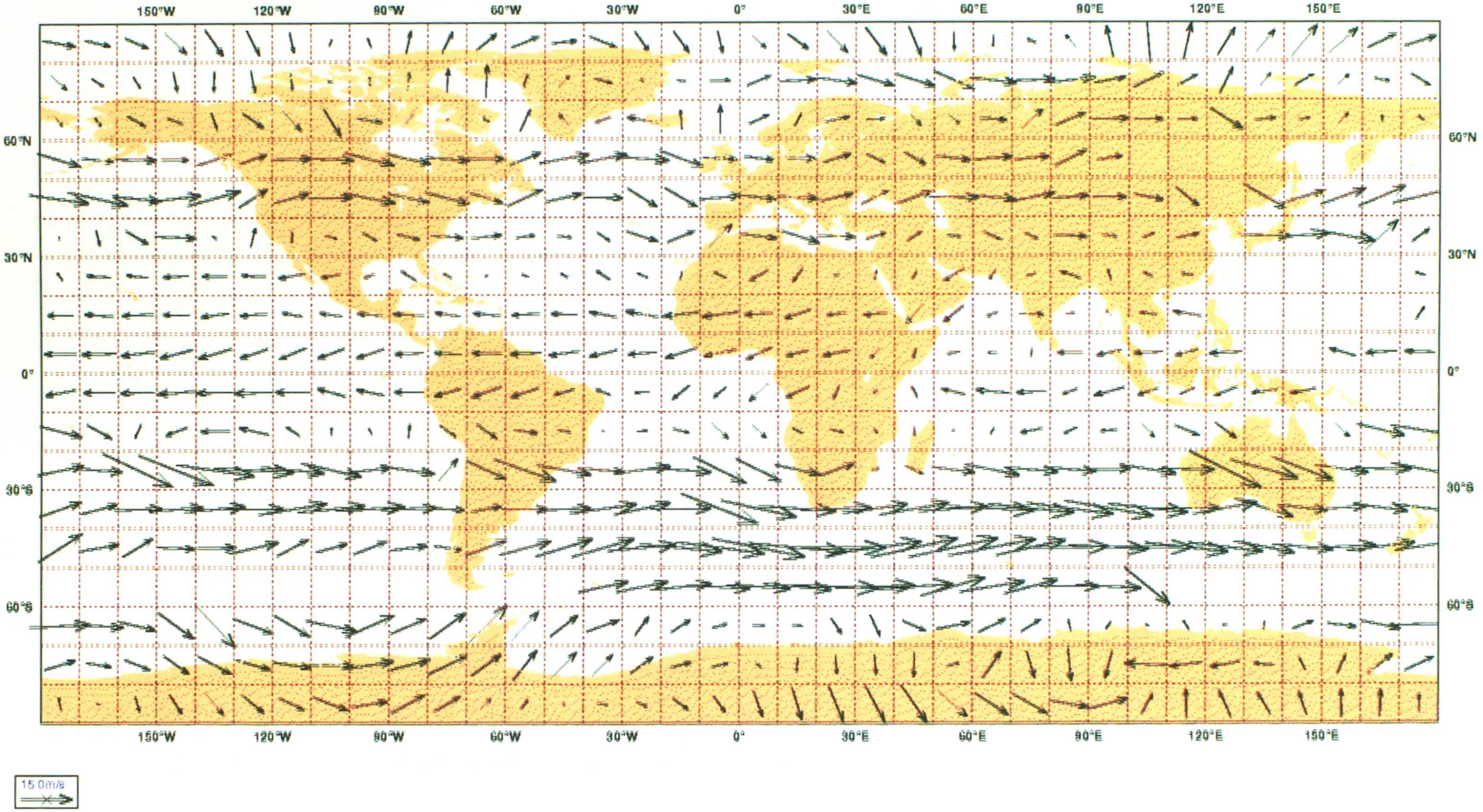

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
15.0m/s

Figure 17. SATOB 401 - 700 hPa mean vector wind differences. JULY 2005
All observations
Arrows are plotted where greater than 10 obs are present

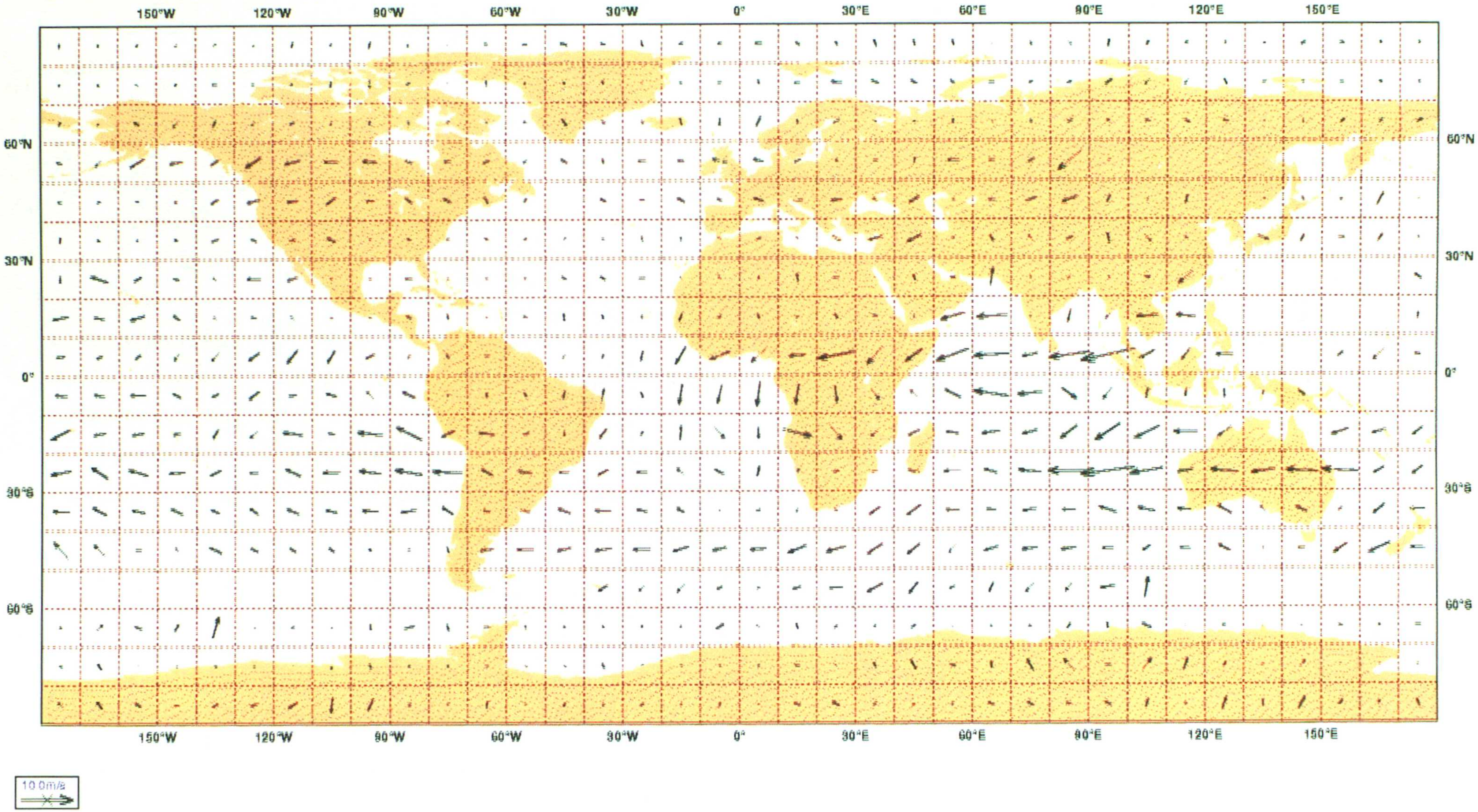
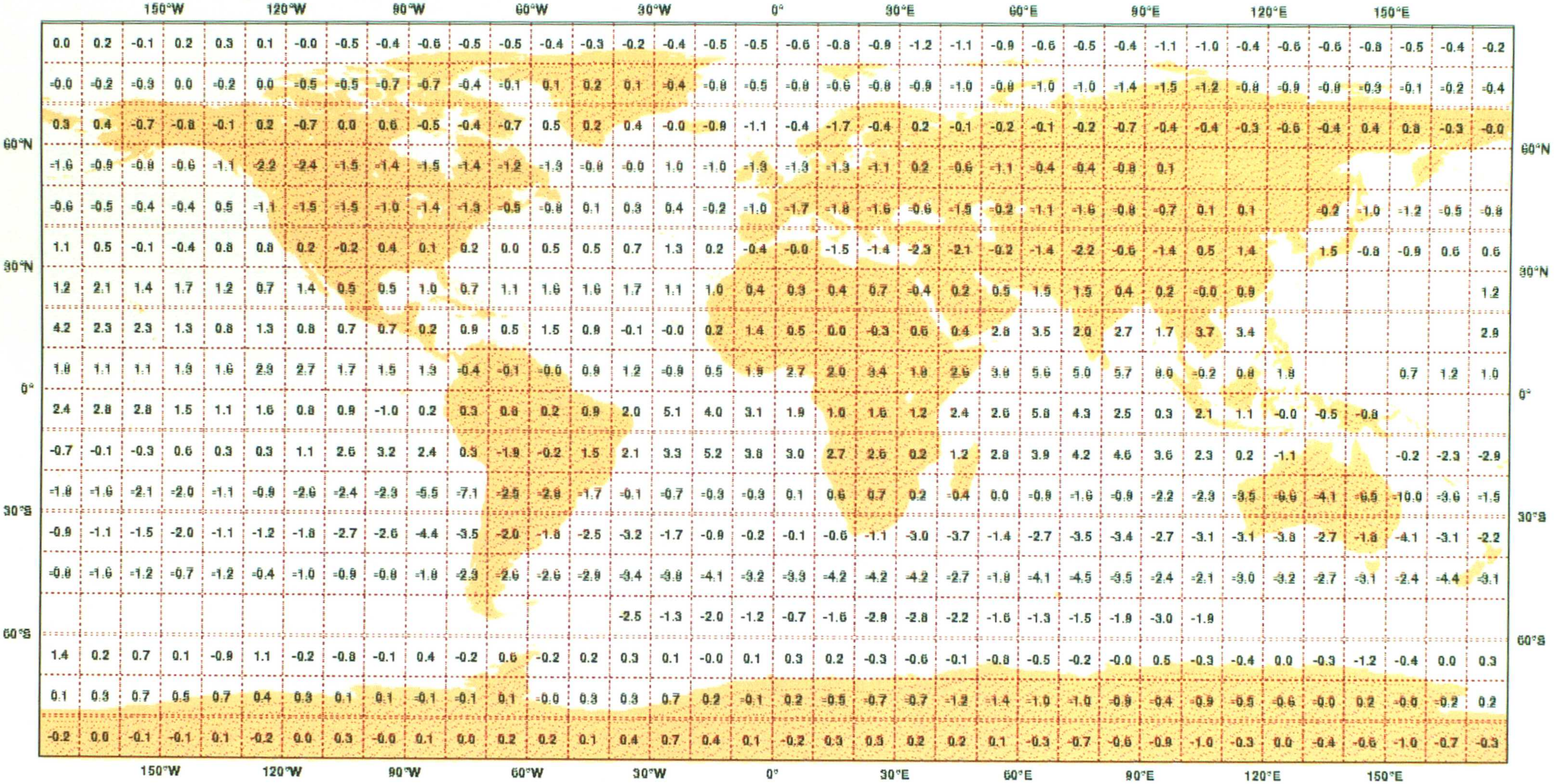
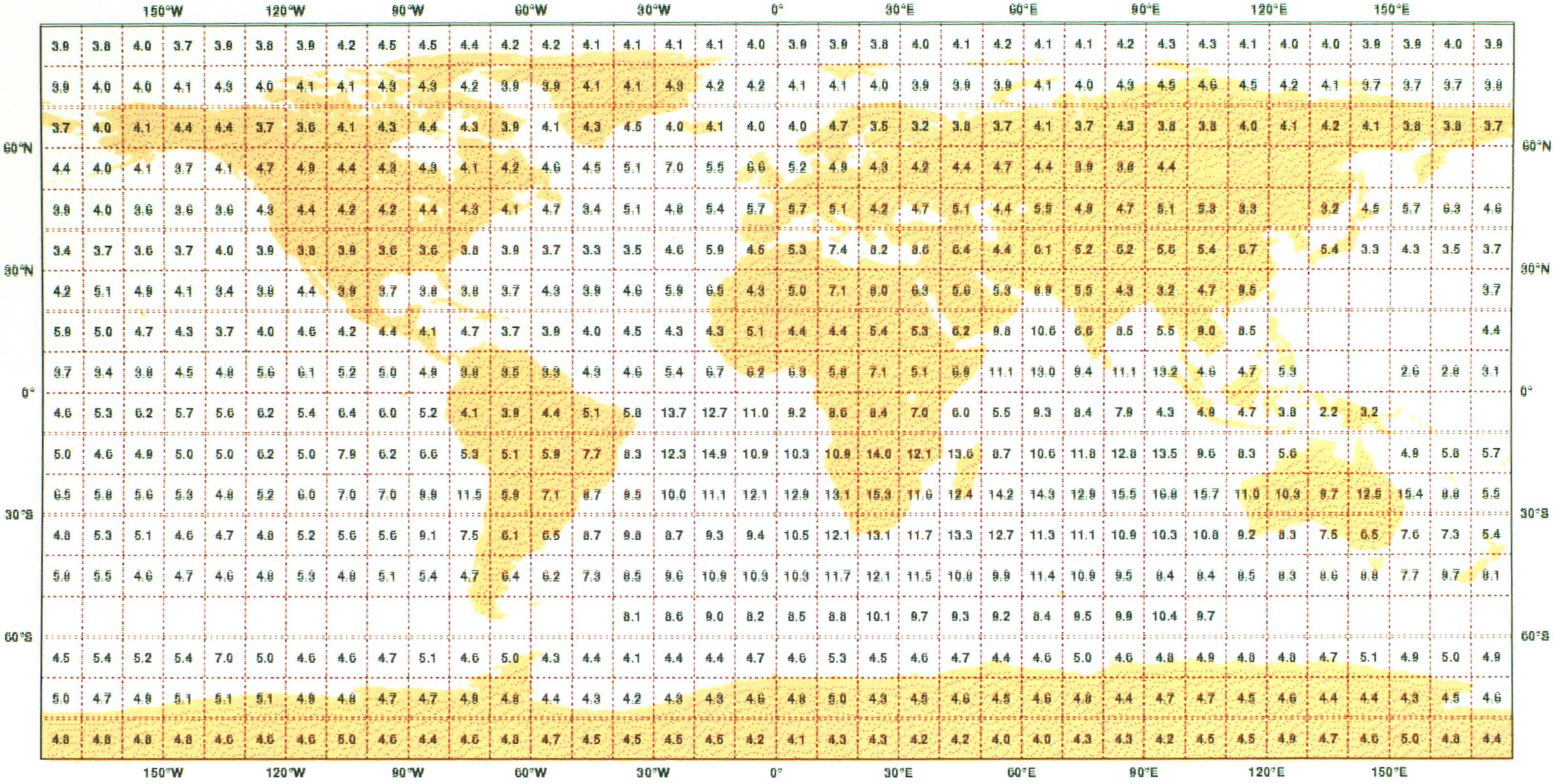

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
10.0m/s

Figure 18. SATOB 401 - 700 hPa mean O-B speed differences (ms-1). JULY 2005
All observations
Values are plotted where greater than 10 obs are present



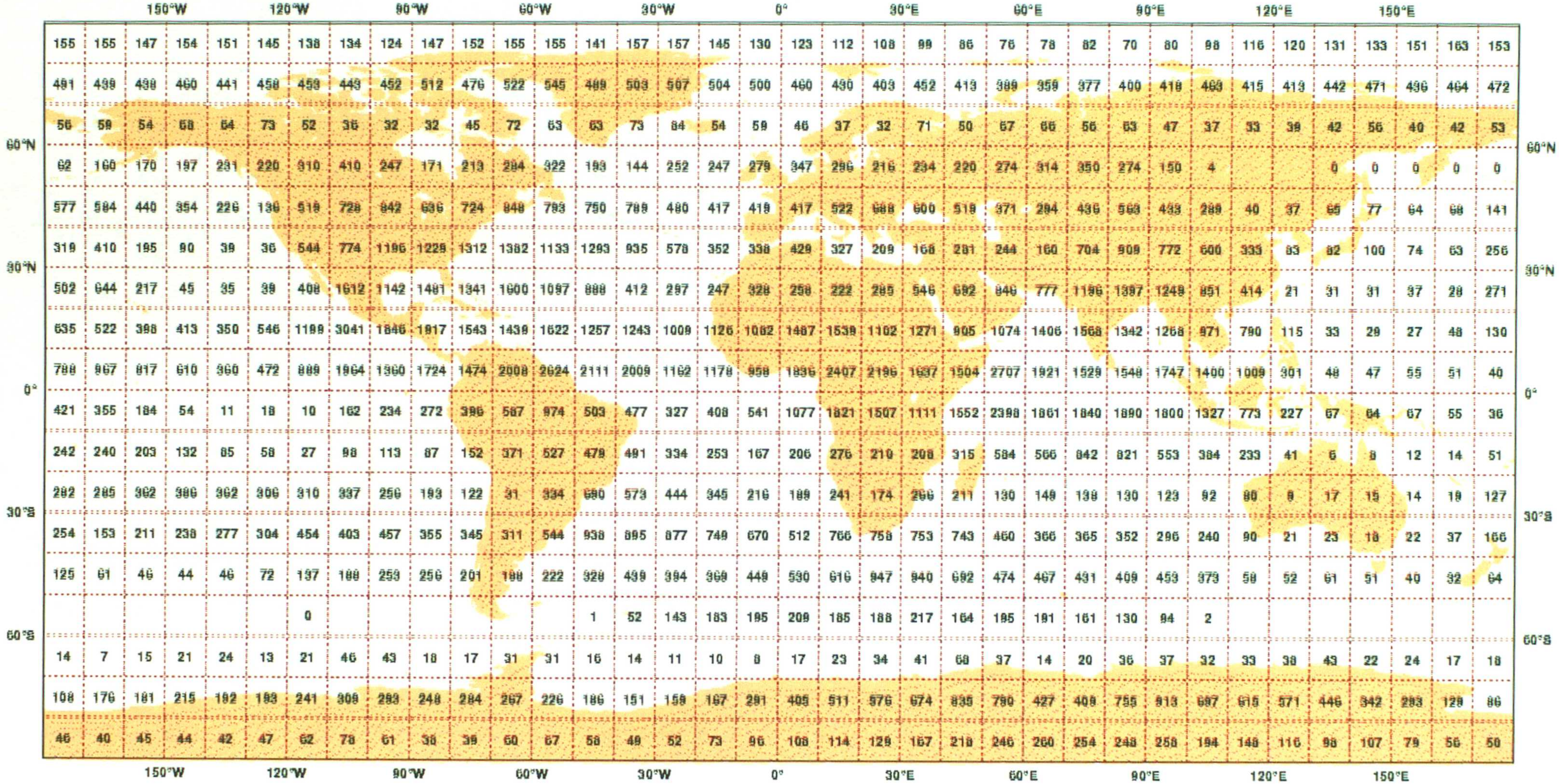
0.0	0.2	-0.1	0.2	0.3	0.1	-0.0	-0.5	-0.4	-0.6	-0.5	-0.5	-0.4	-0.3	-0.2	-0.4	-0.5	-0.5	-0.6	-0.8	-0.9	-1.2	-1.1	-0.9	-0.6	-0.5	-0.4	-1.1	-1.0	-0.4	-0.6	-0.6	-0.8	-0.5	-0.4	-0.2
-0.0	-0.2	-0.3	0.0	-0.2	0.0	-0.5	-0.5	-0.7	-0.7	-0.4	-0.1	0.1	0.2	0.1	-0.4	-0.8	-0.5	-0.8	-0.6	-0.8	-0.9	-1.0	-0.8	-1.0	-1.0	-1.4	-1.5	-1.2	-0.8	-0.9	-0.8	-0.3	-0.1	-0.2	-0.4
0.3	0.4	-0.7	-0.8	-0.1	0.2	-0.7	0.0	0.6	-0.5	-0.4	-0.7	0.5	0.2	0.4	-0.0	-0.9	-1.1	-0.4	-1.7	-0.4	0.2	-0.1	-0.2	-0.1	-0.2	-0.7	-0.4	-0.4	-0.3	-0.6	-0.4	0.4	0.8	-0.3	-0.0
-1.6	-0.9	-0.8	-0.6	-1.1	-2.2	-2.4	-1.5	-1.4	-1.5	-1.4	-1.2	-1.3	-0.8	-0.0	1.0	-1.0	-1.3	-1.3	-1.3	-1.1	0.2	-0.6	-1.1	-0.4	-0.4	-0.8	0.1								
-0.6	-0.5	-0.4	-0.4	0.5	-1.1	-1.5	-1.5	-1.0	-1.4	-1.3	-0.5	-0.8	0.1	0.3	0.4	-0.2	-1.0	-1.7	-1.8	-1.6	-0.6	-1.5	-0.2	-1.1	-1.6	-0.8	-0.7	0.1	0.1		-0.2	-1.0	-1.2	-0.5	-0.8
1.1	0.5	-0.1	-0.4	0.8	0.8	0.2	-0.2	0.4	0.1	0.2	0.0	0.5	0.5	0.7	1.3	0.2	-0.4	-0.0	-1.5	-1.4	-2.3	-2.1	-0.2	-1.4	-2.2	-0.6	-1.4	0.5	1.4		1.5	-0.8	-0.9	0.6	0.6
1.2	2.1	1.4	1.7	1.2	0.7	1.4	0.5	0.5	1.0	0.7	1.1	1.6	1.6	1.7	1.1	1.0	0.4	0.3	0.4	0.7	-0.4	0.2	0.5	1.5	1.5	0.4	0.2	-0.0	0.9						1.2
4.2	2.3	2.3	1.3	0.8	1.3	0.8	0.7	0.7	0.2	0.9	0.5	1.5	0.9	-0.1	-0.0	0.2	1.4	0.5	0.0	-0.3	0.6	0.4	2.8	3.5	2.0	2.7	1.7	3.7	3.4						2.9
1.8	1.1	1.1	1.3	1.6	2.3	2.7	1.7	1.5	1.3	-0.4	-0.1	-0.0	0.9	1.2	-0.9	0.5	1.9	2.7	2.0	3.4	1.8	2.6	3.8	5.6	5.0	5.7	8.0	-0.2	0.8	1.8			0.7	1.2	1.0
2.4	2.8	2.8	1.5	1.1	1.6	0.8	0.9	-1.0	0.2	0.3	0.8	0.2	0.9	2.0	5.1	4.0	3.1	1.9	1.0	1.6	1.2	2.4	2.6	5.8	4.3	2.5	0.3	2.1	1.1	-0.0	-0.5	-0.8			
-0.7	-0.1	-0.3	0.6	0.3	0.3	1.1	2.6	3.2	2.4	0.3	-1.9	-0.2	1.5	2.1	3.3	5.2	3.8	3.0	2.7	2.6	0.2	1.2	2.8	3.9	4.2	4.6	3.6	2.3	0.2	-1.1			-0.2	-2.3	-2.9
-1.8	-1.6	-2.1	-2.0	-1.1	-0.9	-2.6	-2.4	-2.3	-5.5	-7.1	-2.5	-2.8	-1.7	-0.1	-0.7	-0.3	-0.3	0.1	0.6	0.7	0.2	-0.4	0.0	-0.9	-1.6	-0.9	-2.2	-2.3	-3.5	-6.9	-4.1	-6.5	-10.0	-3.6	-1.5
-0.9	-1.1	-1.5	-2.0	-1.1	-1.2	-1.8	-2.7	-2.6	-4.4	-3.5	-2.0	-1.8	-2.5	-3.2	-1.7	-0.9	-0.2	-0.1	-0.6	-1.1	-3.0	-3.7	-1.4	-2.7	-3.5	-3.4	-2.7	-3.1	-3.1	-3.8	-2.7	-1.8	-4.1	-3.1	-2.2
-0.8	-1.6	-1.2	-0.7	-1.2	-0.4	-1.0	-0.9	-0.8	-1.8	-2.3	-2.6	-2.6	-2.9	-3.4	-3.8	-4.1	-3.2	-3.3	-4.2	-4.2	-4.2	-2.7	-1.8	-4.1	-4.5	-3.5	-2.4	-2.1	-3.0	-3.2	-2.7	-3.1	-2.4	-4.4	-3.1
														-2.5	-1.3	-2.0	-1.2	-0.7	-1.6	-2.9	-2.8	-2.2	-1.6	-1.3	-1.5	-1.9	-3.0	-1.9							
1.4	0.2	0.7	0.1	-0.9	1.1	-0.2	-0.8	-0.1	0.4	-0.2	0.6	-0.2	0.2	0.3	0.1	-0.0	0.1	0.3	0.2	-0.3	-0.6	-0.1	-0.8	-0.5	-0.2	-0.0	0.5	-0.3	-0.4	0.0	-0.3	-1.2	-0.4	0.0	0.3
0.1	0.3	0.7	0.5	0.7	0.4	0.3	0.1	0.1	-0.1	-0.1	0.1	-0.0	0.3	0.3	0.7	0.2	-0.1	0.2	-0.5	-0.7	-0.7	-1.2	-1.4	-1.0	-1.0	-0.9	-0.4	-0.9	-0.5	-0.6	-0.0	0.2	-0.0	-0.2	0.2
-0.2	0.0	-0.1	-0.1	0.1	-0.2	0.0	0.3	-0.0	0.1	0.0	0.2	0.2	0.1	0.4	0.7	0.4	0.1	-0.2	0.3	0.3	0.2	0.2	0.1	-0.3	-0.7	-0.6	-0.9	-1.0	-0.3	0.0	-0.4	-0.6	-1.0	-0.7	-0.3

Figure 19. SATOB 401 - 700 hPa mean RMS O-B vector differences (ms-1). JULY 2005
All observations
Values are plotted where greater than 10 obs are present



3.9	3.8	4.0	3.7	3.9	3.8	3.9	4.2	4.5	4.5	4.4	4.2	4.2	4.1	4.1	4.1	4.1	4.0	3.9	3.9	3.8	4.0	4.1	4.2	4.1	4.1	4.2	4.3	4.3	4.1	4.0	4.0	3.9	3.9	4.0	3.9
3.9	4.0	4.0	4.1	4.3	4.0	4.1	4.1	4.3	4.3	4.2	3.9	3.9	4.1	4.1	4.3	4.2	4.2	4.1	4.1	4.0	3.9	3.9	3.9	4.1	4.0	4.3	4.5	4.6	4.5	4.2	4.1	3.7	3.7	3.7	3.9
3.7	4.0	4.1	4.4	4.4	3.7	3.6	4.1	4.3	4.4	4.3	3.9	4.1	4.3	4.5	4.0	4.1	4.0	4.0	4.7	3.5	3.2	3.8	3.7	4.1	3.7	4.3	3.8	3.8	4.0	4.1	4.2	4.1	3.8	3.8	3.7
4.4	4.0	4.1	3.7	4.1	4.7	4.9	4.4	4.3	4.3	4.1	4.2	4.6	4.5	5.1	7.0	5.5	6.6	5.2	4.9	4.3	4.2	4.4	4.7	4.4	3.9	3.8	4.4								
3.9	4.0	3.6	3.6	3.6	4.3	4.4	4.2	4.2	4.4	4.3	4.1	4.7	3.4	5.1	4.8	5.4	5.7	5.7	5.1	4.2	4.7	5.1	4.4	5.5	4.9	4.7	5.1	5.3	3.3		3.2	4.5	5.7	6.3	4.6
3.4	3.7	3.6	3.7	4.0	3.9	3.8	3.9	3.6	3.6	3.8	3.9	3.7	3.3	3.5	4.6	5.9	4.5	5.3	7.4	8.2	8.6	6.4	4.4	6.1	5.2	6.2	5.6	5.4	6.7		5.4	3.3	4.3	3.5	3.7
4.2	5.1	4.9	4.1	3.4	3.9	4.4	3.9	3.7	3.8	3.8	3.7	4.3	3.9	4.6	5.9	6.5	4.3	5.0	7.1	8.0	6.3	5.6	5.3	8.9	5.5	4.3	3.2	4.7	8.5						3.7
5.9	5.0	4.7	4.3	3.7	4.0	4.6	4.2	4.4	4.1	4.7	3.7	3.9	4.0	4.5	4.3	4.3	5.1	4.4	4.4	5.4	5.3	6.2	9.8	10.6	6.6	8.5	5.5	9.0	8.5						4.4
3.7	3.4	3.8	4.5	4.8	5.6	6.1	5.2	5.0	4.9	3.8	3.5	3.3	4.3	4.6	5.4	6.7	6.2	6.3	5.8	7.1	5.1	6.9	11.1	13.0	9.4	11.1	13.2	4.6	4.7	5.3			2.6	2.8	3.1
4.6	5.3	6.2	5.7	5.6	6.2	5.4	6.4	6.0	5.2	4.1	3.9	4.4	5.1	5.8	13.7	12.7	11.0	9.2	8.6	8.4	7.0	6.0	5.5	9.3	8.4	7.9	4.3	4.9	4.7	3.8	2.2	3.2			
5.0	4.6	4.9	5.0	5.0	6.2	5.0	7.9	6.2	6.6	5.3	5.1	5.9	7.7	8.3	12.3	14.9	10.9	10.3	10.9	14.0	12.1	13.6	8.7	10.6	11.8	12.8	13.5	9.6	8.3	5.6			4.9	5.8	5.7
6.5	5.8	5.6	5.3	4.8	5.2	6.0	7.0	7.0	9.9	11.5	5.9	7.1	8.7	9.5	10.0	11.1	12.1	12.9	13.1	15.3	11.6	12.4	14.2	14.3	12.9	15.5	16.8	15.7	11.0	10.3	9.7	12.5	15.4	8.8	5.5
4.8	5.3	5.1	4.6	4.7	4.8	5.2	5.6	5.6	9.1	7.5	6.1	6.5	8.7	9.8	8.7	9.3	9.4	10.5	12.1	13.1	11.7	13.3	12.7	11.3	11.1	10.9	10.3	10.8	9.2	8.3	7.5	6.5	7.6	7.3	5.4
5.8	5.5	4.6	4.7	4.6	4.8	5.3	4.8	5.1	5.4	4.7	6.4	6.2	7.3	8.5	9.6	10.9	10.3	10.3	11.7	12.1	11.5	10.8	9.9	11.4	10.9	9.5	8.4	8.4	8.5	8.3	8.6	8.8	7.7	9.7	8.1
														8.1	8.6	9.0	8.2	8.5	8.8	10.1	9.7	9.3	9.2	8.4	9.5	9.9	10.4	9.7							
4.5	5.4	5.2	5.4	7.0	5.0	4.6	4.6	4.7	5.1	4.6	5.0	4.3	4.4	4.1	4.4	4.4	4.7	4.6	5.3	4.5	4.6	4.7	4.4	4.6	5.0	4.6	4.8	4.9	4.8	4.8	4.7	5.1	4.9	5.0	4.9
5.0	4.7	4.9	5.1	5.1	5.1	4.9	4.8	4.7	4.7	4.8	4.8	4.4	4.3	4.2	4.3	4.3	4.6	4.8	5.0	4.3	4.5	4.6	4.5	4.6	4.8	4.4	4.7	4.7	4.5	4.6	4.4	4.4	4.3	4.5	4.6
4.8	4.8	4.8	4.8	4.6	4.6	4.6	5.0	4.6	4.4	4.6	4.8	4.7	4.5	4.5	4.5	4.5	4.2	4.1	4.3	4.3	4.2	4.2	4.0	4.0	4.3	4.3	4.2	4.5	4.5	4.9	4.7	4.6	5.0	4.8	4.4

Figure 20. SATOB 101 - 400 hPa mean daily count. JULY 2005
Global average number of observations in 24 hours = 254828



155	155	147	154	151	145	138	134	124	147	152	155	155	141	157	157	145	130	123	112	108	99	86	76	78	82	70	80	98	116	120	131	133	151	163	153
491	439	438	460	441	458	459	443	452	512	476	522	545	489	503	507	504	500	460	430	403	452	413	389	359	377	400	418	463	415	413	442	471	436	464	472
56	59	54	68	64	73	52	36	32	32	45	72	63	63	73	84	54	59	46	37	32	71	50	67	66	56	63	47	37	33	39	42	56	40	42	53
62	160	170	197	231	220	310	410	247	171	213	284	322	193	144	252	247	279	347	296	216	234	220	274	314	350	274	150	4			0	0	0	0	0
577	584	440	354	226	136	519	728	842	636	724	848	783	750	789	480	417	419	417	522	688	600	519	371	294	436	563	433	289	40	37	65	77	64	68	141
319	410	195	90	39	36	544	774	1196	1229	1312	1382	1133	1293	935	578	352	338	429	327	209	168	281	244	160	704	909	772	600	333	83	82	100	74	63	256
502	644	217	45	35	39	408	1612	1142	1481	1341	1600	1097	888	412	297	247	328	258	222	285	546	692	846	777	1196	1397	1249	851	414	21	31	31	37	28	271
635	522	398	413	350	546	1199	3041	1846	1917	1543	1439	1622	1257	1243	1009	1126	1082	1487	1539	1102	1271	905	1074	1406	1568	1342	1268	971	790	115	33	29	27	48	130
788	967	817	610	360	472	889	1964	1360	1724	1474	2008	2624	2111	2009	1162	1178	958	1836	2407	2196	1637	1504	2707	1921	1529	1548	1747	1400	1009	301	48	47	55	51	40
421	355	184	54	11	18	10	162	234	272	396	567	974	503	477	327	408	541	1077	1821	1507	1111	1552	2398	1861	1840	1890	1800	1327	773	227	67	64	67	55	36
242	240	203	132	85	58	27	98	113	87	152	371	527	479	491	334	253	167	206	276	210	208	315	584	566	842	821	553	384	233	41	6	8	12	14	51
282	285	362	386	362	306	310	337	256	193	122	31	334	680	573	444	345	216	189	241	174	266	211	130	149	138	130	123	92	80	8	17	15	14	19	127
254	153	211	238	277	304	454	403	457	355	345	311	544	938	895	877	749	670	512	766	758	753	743	460	366	365	352	296	240	90	21	23	18	22	37	166
125	61	46	44	46	72	197	188	253	256	201	188	222	328	439	394	368	449	590	616	947	940	692	474	467	431	409	453	373	58	52	61	51	40	32	64
						0							1	52	143	183	195	209	185	188	217	164	195	191	161	130	94	2							
14	7	15	21	24	13	21	46	43	18	17	31	31	16	14	11	10	8	17	23	34	41	68	37	14	20	36	37	32	33	38	43	22	24	17	18
108	176	181	215	182	183	241	309	283	248	284	267	226	186	151	158	167	281	405	511	576	674	835	790	427	409	755	813	697	615	571	446	342	283	129	86
46	40	45	44	42	47	62	78	61	38	39	60	67	58	49	52	73	96	108	114	129	167	218	246	260	254	248	258	194	148	116	98	107	79	56	50

Figure 21. SATOB 101 - 400 hPa vector mean wind. JULY 2005
All observations
Arrows are plotted where greater than 10 obs are present

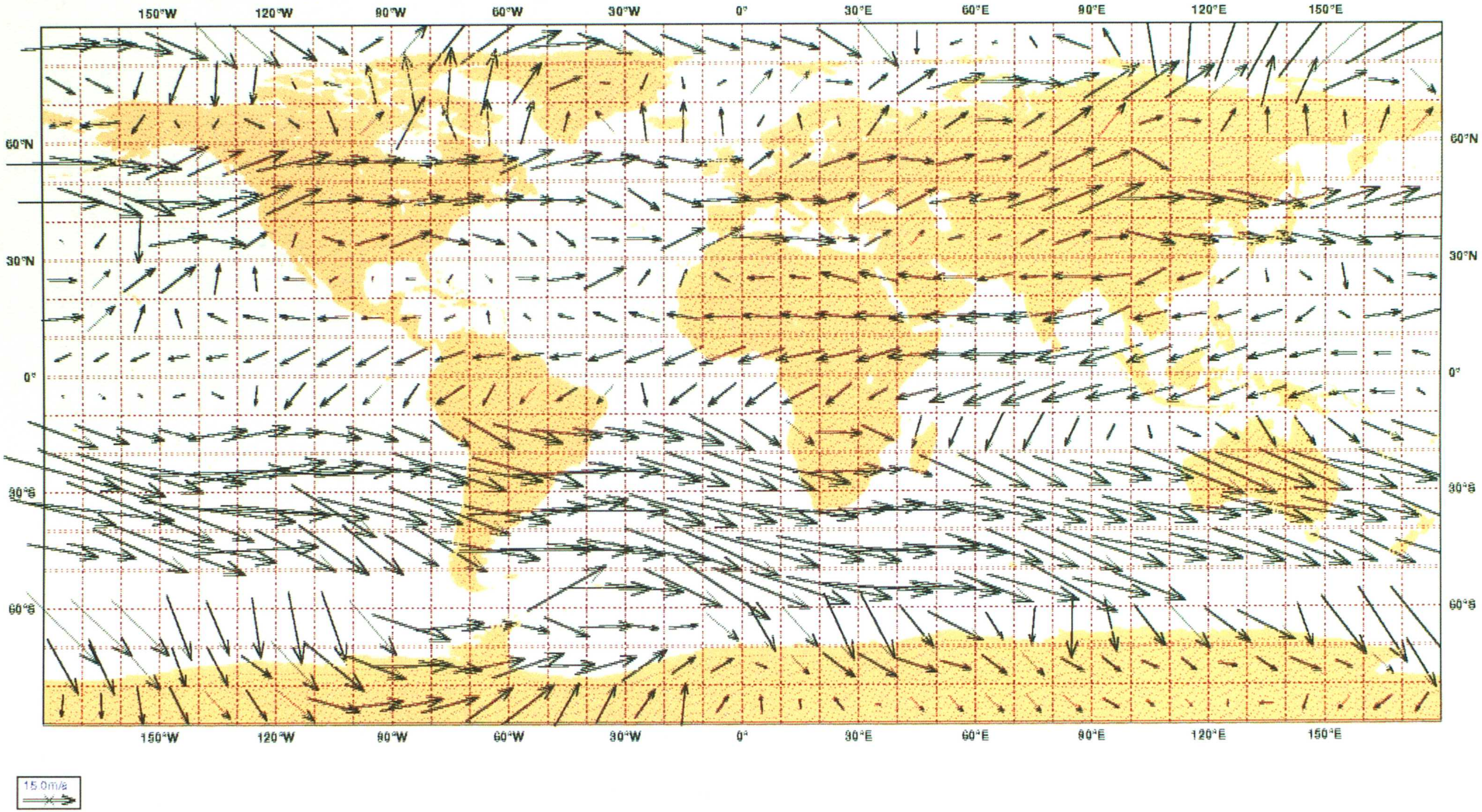

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
15.0m/s

Figure 22. SATOB 101 - 400 hPa mean vector wind differences. JULY 2005
All observations
Arrows are plotted where greater than 10 obs are present

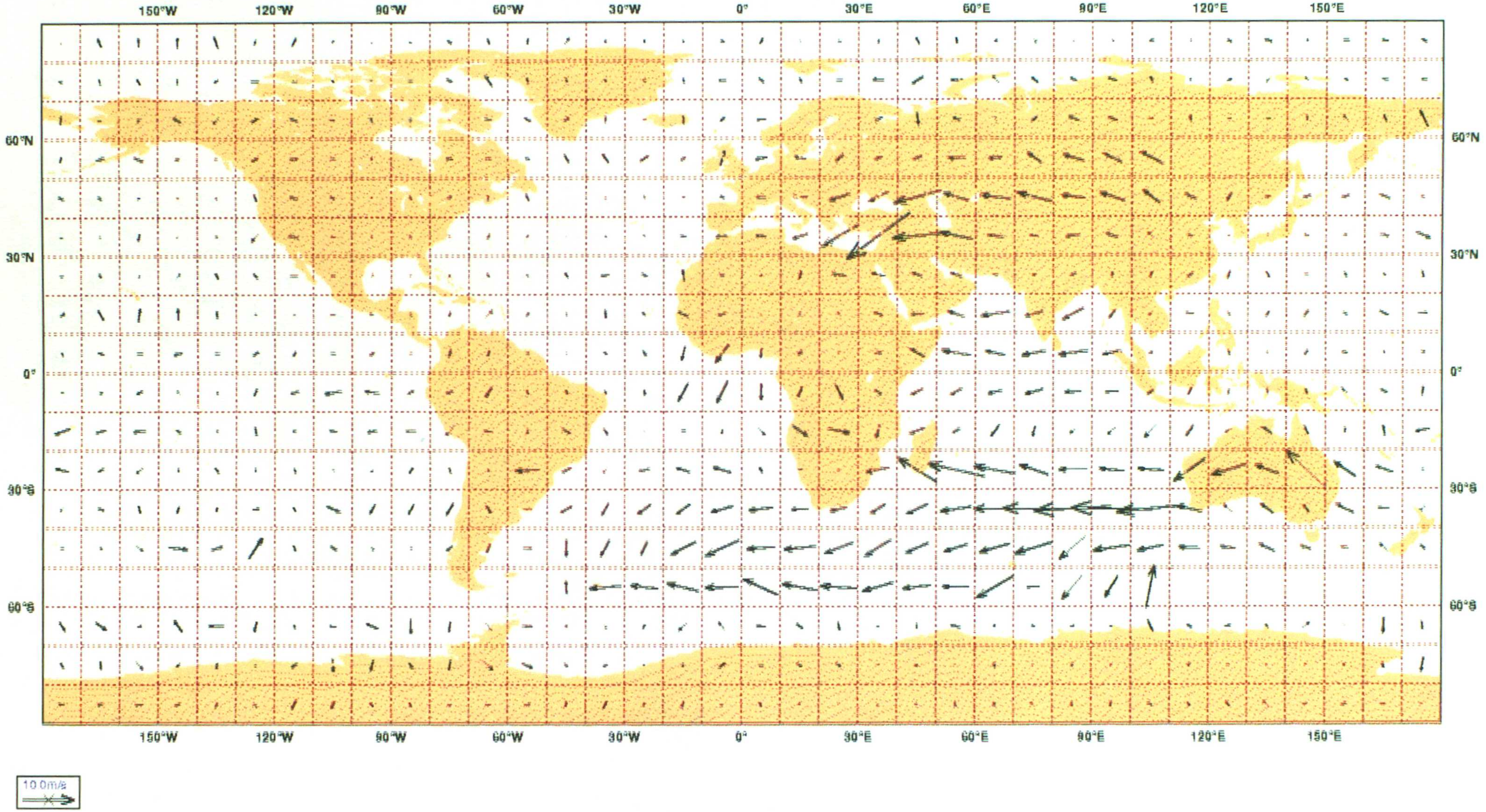
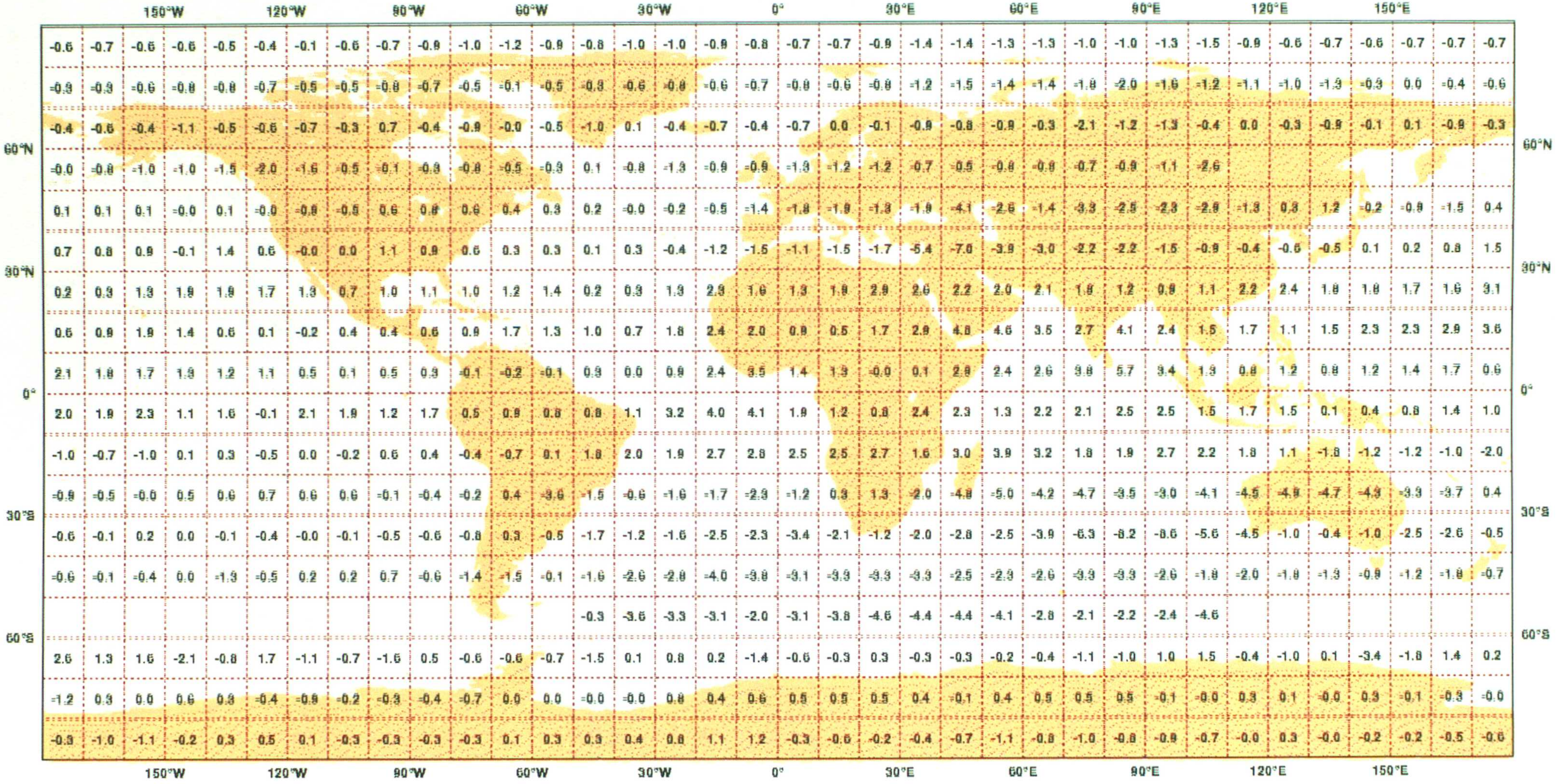

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
10.0m/s

Figure 23. SATOB 101 - 400 hPa mean O-B speed differences (ms-1). JULY 2005
All observations
Values are plotted where greater than 10 obs are present

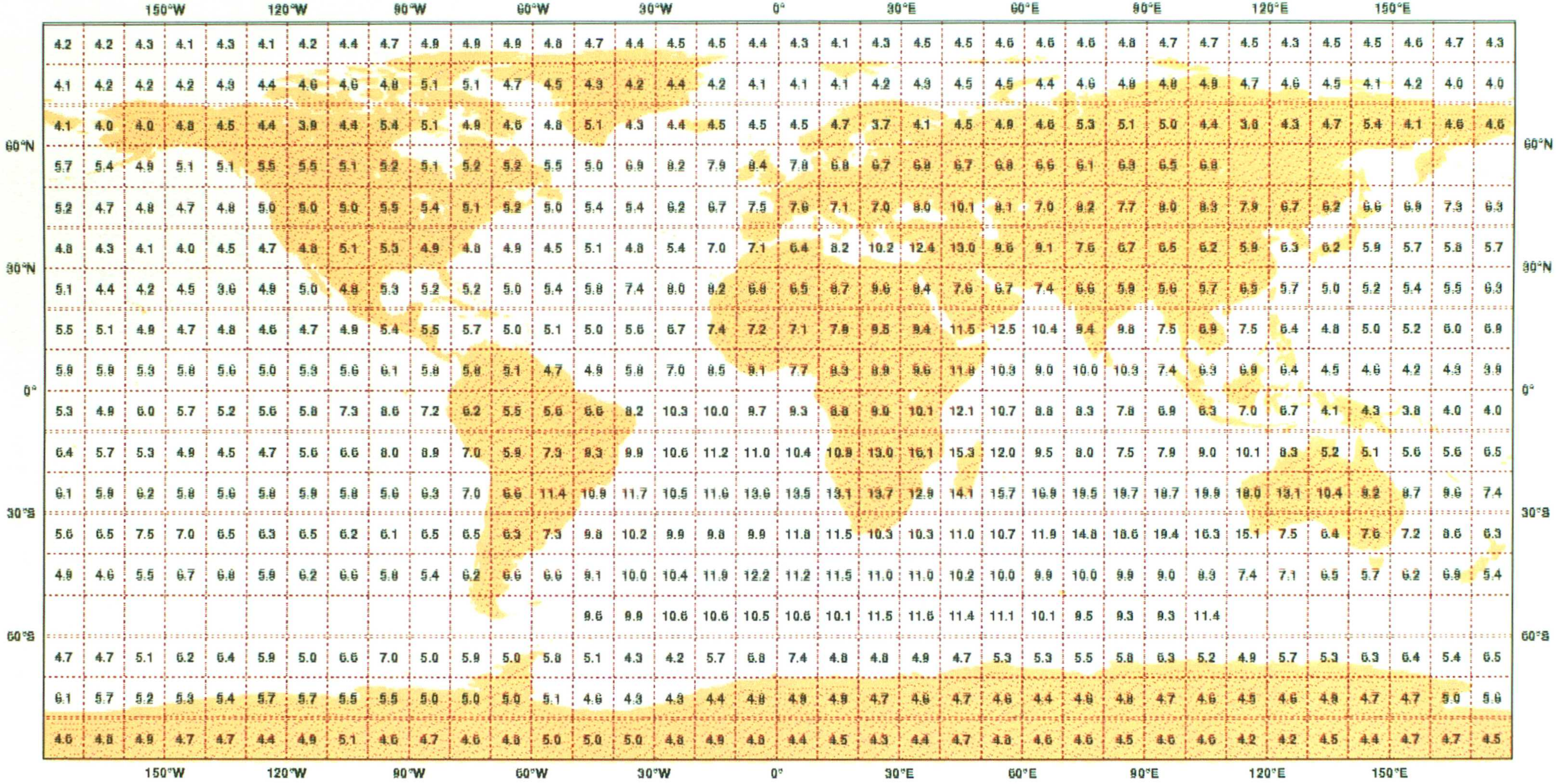


-0.6	-0.7	-0.6	-0.6	-0.5	-0.4	-0.1	-0.6	-0.7	-0.9	-1.0	-1.2	-0.9	-0.8	-1.0	-1.0	-0.9	-0.8	-0.7	-0.7	-0.9	-1.4	-1.4	-1.3	-1.3	-1.0	-1.0	-1.3	-1.5	-0.9	-0.6	-0.7	-0.6	-0.7	-0.7	-0.7
-0.9	-0.9	-0.6	-0.8	-0.8	-0.7	-0.5	-0.5	-0.8	-0.7	-0.5	-0.1	-0.5	-0.3	-0.6	-0.8	-0.6	-0.7	-0.8	-0.6	-0.8	-1.2	-1.5	-1.4	-1.4	-1.8	-2.0	-1.6	-1.2	-1.1	-1.0	-1.3	-0.3	0.0	-0.4	-0.6
-0.4	-0.6	-0.4	-1.1	-0.5	-0.6	-0.7	-0.3	0.7	-0.4	-0.9	-0.0	-0.5	-1.0	0.1	-0.4	-0.7	-0.4	-0.7	0.0	-0.1	-0.9	-0.8	-0.9	-0.3	-2.1	-1.2	-1.3	-0.4	0.0	-0.3	-0.9	-0.1	0.1	-0.9	-0.3
-0.0	-0.8	-1.0	-1.0	-1.5	-2.0	-1.6	-0.5	-0.1	-0.9	-0.8	-0.5	-0.9	0.1	-0.8	-1.3	-0.9	-0.9	-1.3	-1.2	-1.2	-0.7	-0.5	-0.8	-0.8	-0.7	-0.9	-1.1	-2.6							
0.1	0.1	0.1	-0.0	0.1	-0.0	-0.8	-0.5	0.6	0.8	0.6	0.4	0.3	0.2	-0.0	-0.2	-0.5	-1.4	-1.8	-1.9	-1.3	-1.9	-4.1	-2.6	-1.4	-3.3	-2.5	-2.3	-2.9	-1.3	0.3	1.2	-0.2	-0.9	-1.5	0.4
0.7	0.8	0.9	-0.1	1.4	0.6	-0.0	0.0	1.1	0.9	0.6	0.3	0.3	0.1	0.3	-0.4	-1.2	-1.5	-1.1	-1.5	-1.7	-5.4	-7.0	-3.9	-3.0	-2.2	-2.2	-1.5	-0.9	-0.4	-0.6	-0.5	0.1	0.2	0.8	1.5
0.2	0.3	1.3	1.9	1.9	1.7	1.3	0.7	1.0	1.1	1.0	1.2	1.4	0.2	0.3	1.3	2.3	1.6	1.3	1.9	2.9	2.6	2.2	2.0	2.1	1.9	1.2	0.9	1.1	2.2	2.4	1.8	1.8	1.7	1.6	3.1
0.6	0.9	1.9	1.4	0.6	0.1	-0.2	0.4	0.4	0.6	0.9	1.7	1.3	1.0	0.7	1.8	2.4	2.0	0.9	0.5	1.7	2.9	4.8	4.6	3.5	2.7	4.1	2.4	1.5	1.7	1.1	1.5	2.3	2.3	2.9	3.6
2.1	1.8	1.7	1.9	1.2	1.1	0.5	0.1	0.5	0.3	-0.1	-0.2	-0.1	0.3	0.0	0.9	2.4	3.5	1.4	1.3	-0.0	0.1	2.8	2.4	2.6	3.8	5.7	3.4	1.3	0.8	1.2	0.8	1.2	1.4	1.7	0.6
2.0	1.9	2.3	1.1	1.6	-0.1	2.1	1.9	1.2	1.7	0.5	0.9	0.8	0.8	1.1	3.2	4.0	4.1	1.9	1.2	0.8	2.4	2.3	1.3	2.2	2.1	2.5	2.5	1.5	1.7	1.5	0.1	0.4	0.8	1.4	1.0
-1.0	-0.7	-1.0	0.1	0.3	-0.5	0.0	-0.2	0.6	0.4	-0.4	-0.7	0.1	1.8	2.0	1.9	2.7	2.8	2.5	2.5	2.7	1.6	3.0	3.9	3.2	1.8	1.9	2.7	2.2	1.8	1.1	-1.8	-1.2	-1.2	-1.0	-2.0
-0.9	-0.5	-0.0	0.5	0.6	0.7	0.6	0.6	-0.1	-0.4	-0.2	0.4	-3.6	-1.5	-0.6	-1.6	-1.7	-2.3	-1.2	0.3	1.3	-2.0	-4.8	-5.0	-4.2	-4.7	-3.5	-3.0	-4.1	-4.5	-4.9	-4.7	-4.3	-3.3	-3.7	0.4
-0.6	-0.1	0.2	0.0	-0.1	-0.4	-0.0	-0.1	-0.5	-0.6	-0.8	0.3	-0.5	-1.7	-1.2	-1.6	-2.5	-2.3	-3.4	-2.1	-1.2	-2.0	-2.8	-2.5	-3.9	-6.3	-8.2	-8.6	-5.6	-4.5	-1.0	-0.4	-1.0	-2.5	-2.6	-0.5
-0.6	-0.1	-0.4	0.0	-1.3	-0.5	0.2	0.2	0.7	-0.6	-1.4	-1.5	-0.1	-1.6	-2.6	-2.8	-4.0	-3.8	-3.1	-3.3	-3.3	-3.3	-2.5	-2.3	-2.6	-3.3	-3.3	-2.6	-1.8	-2.0	-1.8	-1.3	-0.8	-1.2	-1.8	-0.7
													-0.3	-3.6	-3.3	-3.1	-2.0	-3.1	-3.8	-4.6	-4.4	-4.4	-4.1	-2.8	-2.1	-2.2	-2.4	-4.6							
2.6	1.3	1.6	-2.1	-0.8	1.7	-1.1	-0.7	-1.6	0.5	-0.6	-0.6	-0.7	-1.5	0.1	0.8	0.2	-1.4	-0.6	-0.3	0.3	-0.3	-0.3	-0.2	-0.4	-1.1	-1.0	1.0	1.5	-0.4	-1.0	0.1	-3.4	-1.8	1.4	0.2
-1.2	0.3	0.0	0.6	0.3	-0.4	-0.9	-0.2	-0.3	-0.4	-0.7	0.0	0.0	-0.0	-0.0	0.8	0.4	0.6	0.5	0.5	0.5	0.4	-0.1	0.4	0.5	0.5	0.5	-0.1	-0.0	0.3	0.1	-0.0	0.3	-0.1	-0.3	-0.0
-0.3	-1.0	-1.1	-0.2	0.3	0.5	0.1	-0.3	-0.3	-0.3	-0.3	0.1	0.3	0.3	0.4	0.8	1.1	1.2	-0.3	-0.6	-0.2	-0.4	-0.7	-1.1	-0.8	-1.0	-0.8	-0.9	-0.7	-0.0	0.3	-0.0	-0.2	-0.2	-0.5	-0.6

Figure 24. SATOB 101 - 400 hPa mean RMS O-B vector differences (ms-1). JULY 2005

All observations

Values are plotted where greater than 10 obs are present



4.2	4.2	4.3	4.1	4.3	4.1	4.2	4.4	4.7	4.9	4.9	4.9	4.8	4.7	4.4	4.5	4.5	4.4	4.3	4.1	4.3	4.5	4.5	4.6	4.6	4.6	4.8	4.7	4.7	4.5	4.3	4.5	4.5	4.6	4.7	4.3
4.1	4.2	4.2	4.2	4.3	4.4	4.6	4.6	4.8	5.1	5.1	4.7	4.5	4.3	4.2	4.4	4.2	4.1	4.1	4.1	4.2	4.3	4.5	4.5	4.4	4.6	4.8	4.8	4.9	4.7	4.6	4.5	4.1	4.2	4.0	4.0
4.1	4.0	4.0	4.8	4.5	4.4	3.9	4.4	5.4	5.1	4.9	4.6	4.8	5.1	4.3	4.4	4.5	4.5	4.5	4.7	3.7	4.1	4.5	4.9	4.6	5.3	5.1	5.0	4.4	3.8	4.3	4.7	5.4	4.1	4.6	4.6
5.7	5.4	4.9	5.1	5.1	5.5	5.5	5.1	5.2	5.1	5.2	5.2	5.5	5.0	6.9	8.2	7.9	8.4	7.8	6.8	6.7	6.9	6.7	6.8	6.6	6.1	6.9	6.5	6.8							
5.2	4.7	4.8	4.7	4.8	5.0	5.0	5.0	5.5	5.4	5.1	5.2	5.0	5.4	5.4	6.2	6.7	7.5	7.6	7.1	7.0	8.0	10.1	8.1	7.0	8.2	7.7	8.0	8.3	7.9	6.7	6.2	6.6	6.9	7.3	6.3
4.8	4.3	4.1	4.0	4.5	4.7	4.8	5.1	5.5	4.9	4.8	4.9	4.5	5.1	4.8	5.4	7.0	7.1	6.4	8.2	10.2	12.4	13.0	9.6	9.1	7.6	6.7	6.5	6.2	5.9	6.3	6.2	5.9	5.7	5.8	5.7
5.1	4.4	4.2	4.5	3.6	4.9	5.0	4.8	5.3	5.2	5.2	5.0	5.4	5.8	7.4	8.0	8.2	6.9	6.5	8.7	9.6	9.4	7.6	6.7	7.4	6.6	5.9	5.6	5.7	6.5	5.7	5.0	5.2	5.4	5.5	6.3
5.5	5.1	4.9	4.7	4.8	4.6	4.7	4.9	5.4	5.5	5.7	5.0	5.1	5.0	5.6	6.7	7.4	7.2	7.1	7.9	9.5	9.4	11.5	12.5	10.4	9.4	9.8	7.5	6.9	7.5	6.4	4.8	5.0	5.2	6.0	6.9
5.9	5.9	5.3	5.8	5.6	5.0	5.3	5.6	6.1	5.8	5.8	5.1	4.7	4.9	5.8	7.0	8.5	9.1	7.7	8.3	8.9	9.6	11.8	10.3	9.0	10.0	10.3	7.4	6.3	6.9	6.4	4.5	4.6	4.2	4.3	3.9
5.3	4.9	6.0	5.7	5.2	5.6	5.8	7.3	8.6	7.2	6.2	5.5	5.6	6.6	8.2	10.3	10.0	9.7	9.3	6.8	9.0	10.1	12.1	10.7	8.8	8.3	7.8	6.9	6.3	7.0	6.7	4.1	4.3	3.8	4.0	4.0
6.4	5.7	5.3	4.9	4.5	4.7	5.6	6.6	8.0	8.9	7.0	5.9	7.3	9.3	9.9	10.6	11.2	11.0	10.4	10.9	13.0	16.1	15.3	12.0	9.5	8.0	7.5	7.9	9.0	10.1	8.3	5.2	5.1	5.6	5.6	6.5
6.1	5.9	6.2	5.8	5.6	5.8	5.9	5.8	5.6	6.3	7.0	6.6	11.4	10.9	11.7	10.5	11.6	13.6	13.5	13.1	13.7	12.9	14.1	15.7	16.9	19.5	19.7	18.7	19.9	18.0	13.1	10.4	9.2	8.7	9.6	7.4
5.6	6.5	7.5	7.0	6.5	6.3	6.5	6.2	6.1	6.5	6.5	6.3	7.3	9.8	10.2	9.9	9.8	9.9	11.8	11.5	10.3	10.3	11.0	10.7	11.9	14.8	18.6	19.4	16.3	15.1	7.5	6.4	7.6	7.2	8.6	6.3
4.9	4.6	5.5	6.7	6.8	5.9	6.2	6.6	5.8	5.4	6.2	6.6	6.6	9.1	10.0	10.4	11.9	12.2	11.2	11.5	11.0	11.0	10.2	10.0	9.9	10.0	9.9	9.0	8.3	7.4	7.1	6.5	5.7	6.2	6.9	5.4
													9.6	9.9	10.6	10.6	10.5	10.6	10.1	11.5	11.6	11.4	11.1	10.1	9.5	9.3	9.3	11.4							
4.7	4.7	5.1	6.2	6.4	5.9	5.0	6.6	7.0	5.0	5.9	5.0	5.8	5.1	4.3	4.2	5.7	6.8	7.4	4.8	4.8	4.9	4.7	5.3	5.3	5.5	5.8	6.3	5.2	4.9	5.7	5.3	6.3	6.4	5.4	6.5
6.1	5.7	5.2	5.3	5.4	5.7	5.7	5.5	5.5	5.0	5.0	5.0	5.1	4.6	4.3	4.3	4.4	4.8	4.9	4.9	4.7	4.6	4.7	4.6	4.4	4.6	4.8	4.7	4.6	4.5	4.6	4.9	4.7	4.7	5.0	5.6
4.6	4.8	4.9	4.7	4.7	4.4	4.9	5.1	4.6	4.7	4.6	4.8	5.0	5.0	5.0	4.8	4.9	4.8	4.4	4.5	4.3	4.4	4.7	4.8	4.6	4.6	4.5	4.6	4.6	4.2	4.2	4.5	4.4	4.7	4.7	4.5

MONITORING OF SATELLITE TEMPERATURES

MONITORING CENTRE: EXETER

MONTH: July 2005

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from NOAA-15, NOAA-16 and NOAA-17.

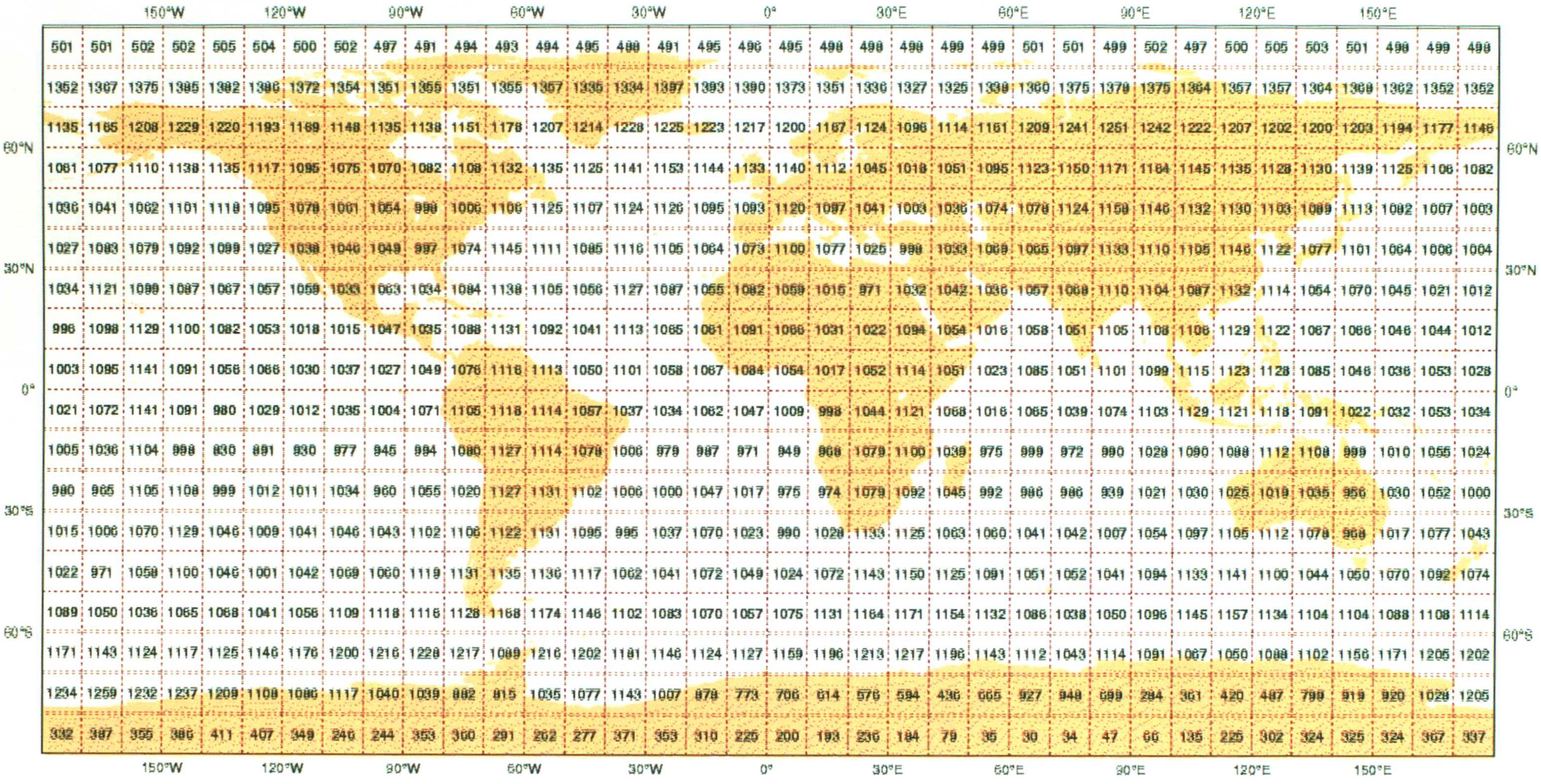
Standard of comparison :Background field from UKMO global model.

Selection Criteria :All soundings.

Data Extracted :Sounding channels (and approximate weighting function peaks, hPa)
HIRS8 (Surface)
HIRS15 (700)
HIRS11 (500-700)
HIRS4 (400)
AMSUA5 (700)
AMSUA7 (300)
AMSUA9 (100)

:Mean and standard deviation observation-minus-background brightness temperature differences

Figure 25. ATOVS mean daily count. JULY 2005
NOAA15, using all observations
Global average number of observations in 24 hours = 653714



501	501	502	502	505	504	500	502	497	491	494	493	494	495	498	491	495	496	495	498	498	498	499	499	501	501	499	502	497	500	505	503	501	498	499	498
1352	1367	1375	1385	1382	1386	1372	1354	1351	1355	1351	1355	1357	1335	1334	1397	1393	1390	1373	1351	1336	1327	1325	1338	1360	1375	1379	1375	1364	1357	1357	1364	1368	1362	1352	1352
1135	1165	1208	1229	1220	1193	1169	1148	1135	1138	1151	1178	1207	1214	1228	1225	1223	1217	1200	1167	1124	1096	1114	1161	1209	1241	1251	1242	1222	1207	1202	1200	1203	1194	1177	1146
1061	1077	1110	1138	1135	1117	1095	1075	1070	1082	1108	1132	1135	1125	1141	1153	1144	1133	1140	1112	1045	1018	1051	1095	1123	1150	1171	1164	1145	1135	1128	1130	1139	1125	1106	1082
1036	1041	1062	1101	1118	1095	1078	1061	1054	998	1006	1106	1125	1107	1124	1126	1095	1093	1120	1097	1041	1003	1036	1074	1078	1124	1158	1146	1132	1130	1103	1089	1113	1082	1007	1003
1027	1083	1079	1092	1099	1027	1038	1046	1049	997	1074	1145	1111	1085	1116	1105	1064	1073	1100	1077	1025	998	1033	1069	1065	1097	1133	1110	1105	1146	1122	1077	1101	1064	1006	1004
1034	1121	1099	1087	1067	1057	1059	1033	1063	1034	1084	1138	1105	1056	1127	1087	1055	1082	1059	1015	971	1032	1042	1036	1057	1068	1110	1104	1087	1132	1114	1054	1070	1045	1021	1012
996	1098	1129	1100	1082	1053	1018	1015	1047	1035	1088	1131	1092	1041	1113	1065	1061	1091	1066	1031	1022	1094	1054	1016	1058	1051	1105	1108	1106	1129	1122	1067	1066	1046	1044	1012
1003	1095	1141	1091	1056	1066	1030	1037	1027	1049	1076	1116	1113	1050	1101	1058	1067	1084	1054	1017	1052	1114	1051	1023	1085	1051	1101	1099	1115	1123	1128	1085	1046	1036	1053	1028
1021	1072	1141	1091	980	1029	1012	1035	1004	1071	1105	1118	1114	1057	1037	1034	1062	1047	1009	998	1044	1121	1068	1016	1065	1039	1074	1103	1129	1121	1118	1091	1022	1032	1053	1034
1005	1036	1104	998	830	891	930	977	945	984	1080	1127	1114	1078	1006	979	987	971	949	968	1079	1100	1039	975	999	972	990	1028	1090	1088	1112	1108	999	1010	1055	1024
980	965	1105	1108	999	1012	1011	1034	960	1055	1020	1127	1131	1102	1006	1000	1047	1017	975	974	1079	1092	1045	992	986	986	939	1021	1030	1025	1019	1035	956	1030	1052	1000
1015	1006	1070	1129	1046	1009	1041	1046	1043	1102	1106	1122	1131	1095	995	1037	1070	1023	990	1028	1133	1125	1063	1060	1041	1042	1007	1054	1097	1105	1112	1078	968	1017	1077	1043
1022	971	1058	1100	1046	1001	1042	1069	1060	1119	1131	1135	1136	1117	1062	1041	1072	1049	1024	1072	1143	1150	1125	1091	1051	1052	1041	1094	1133	1141	1100	1044	1050	1070	1092	1074
1089	1050	1036	1065	1068	1041	1056	1109	1118	1116	1128	1168	1174	1146	1102	1083	1070	1057	1075	1131	1164	1171	1154	1132	1086	1038	1050	1096	1145	1157	1134	1104	1104	1088	1108	1114
1171	1143	1124	1117	1125	1146	1176	1200	1216	1228	1217	1089	1216	1202	1181	1146	1124	1127	1159	1196	1213	1217	1196	1143	1112	1043	1114	1091	1067	1050	1088	1102	1156	1171	1205	1202
1234	1259	1232	1237	1209	1108	1086	1117	1040	1039	882	815	1035	1077	1143	1007	878	773	706	614	576	594	436	665	927	948	699	284	361	420	487	799	919	920	1028	1205
332	387	355	386	411	407	349	240	244	353	360	291	262	277	371	353	310	225	200	193	236	184	79	35	30	34	47	66	135	225	302	324	325	324	367	337

Figure 26. ATOVS MEAN O-B brightness temperature differences (deg C). JULY 2005
Channel: HIRS8 (Surface)
NOAA15, using all observations

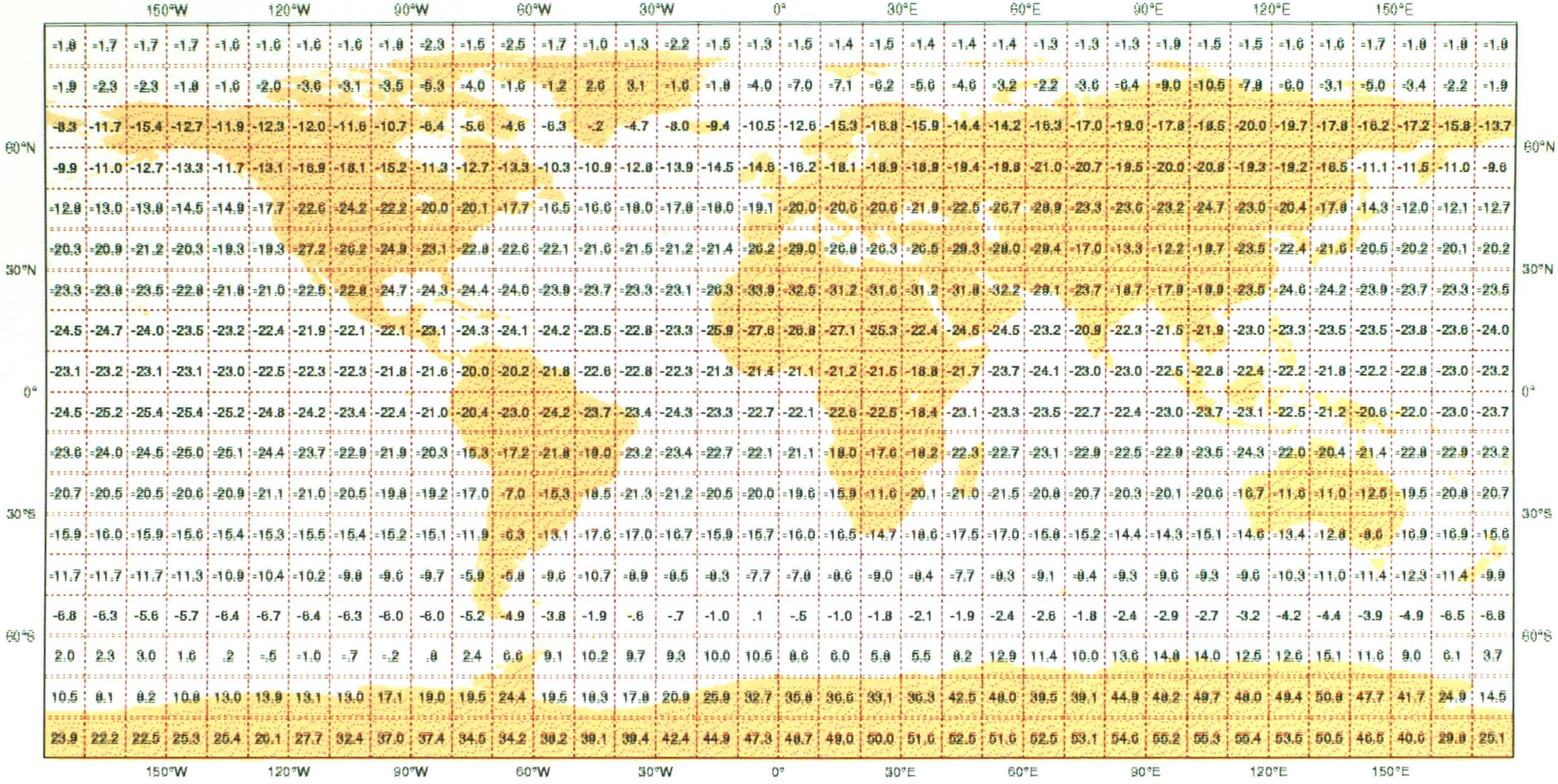
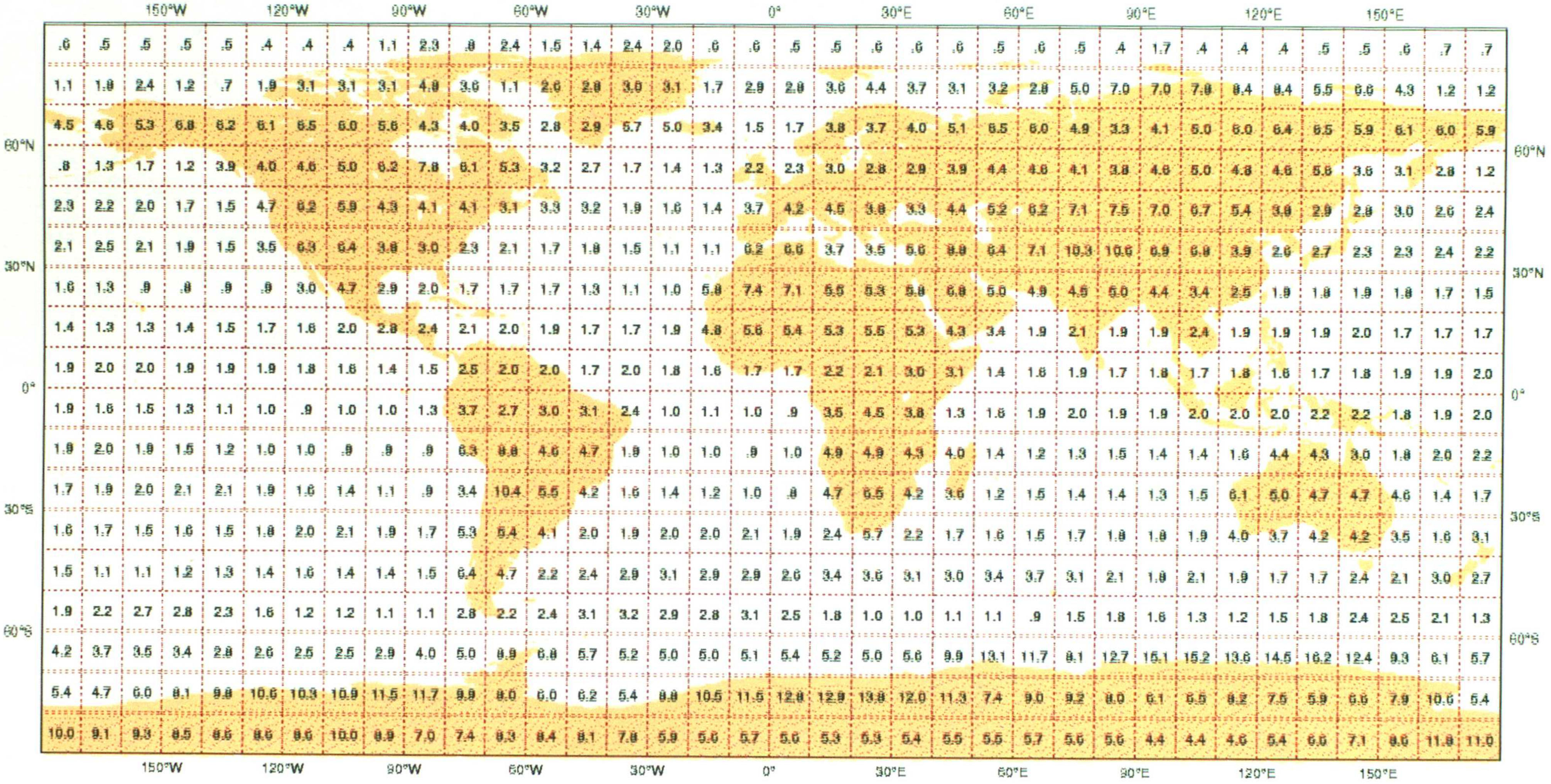
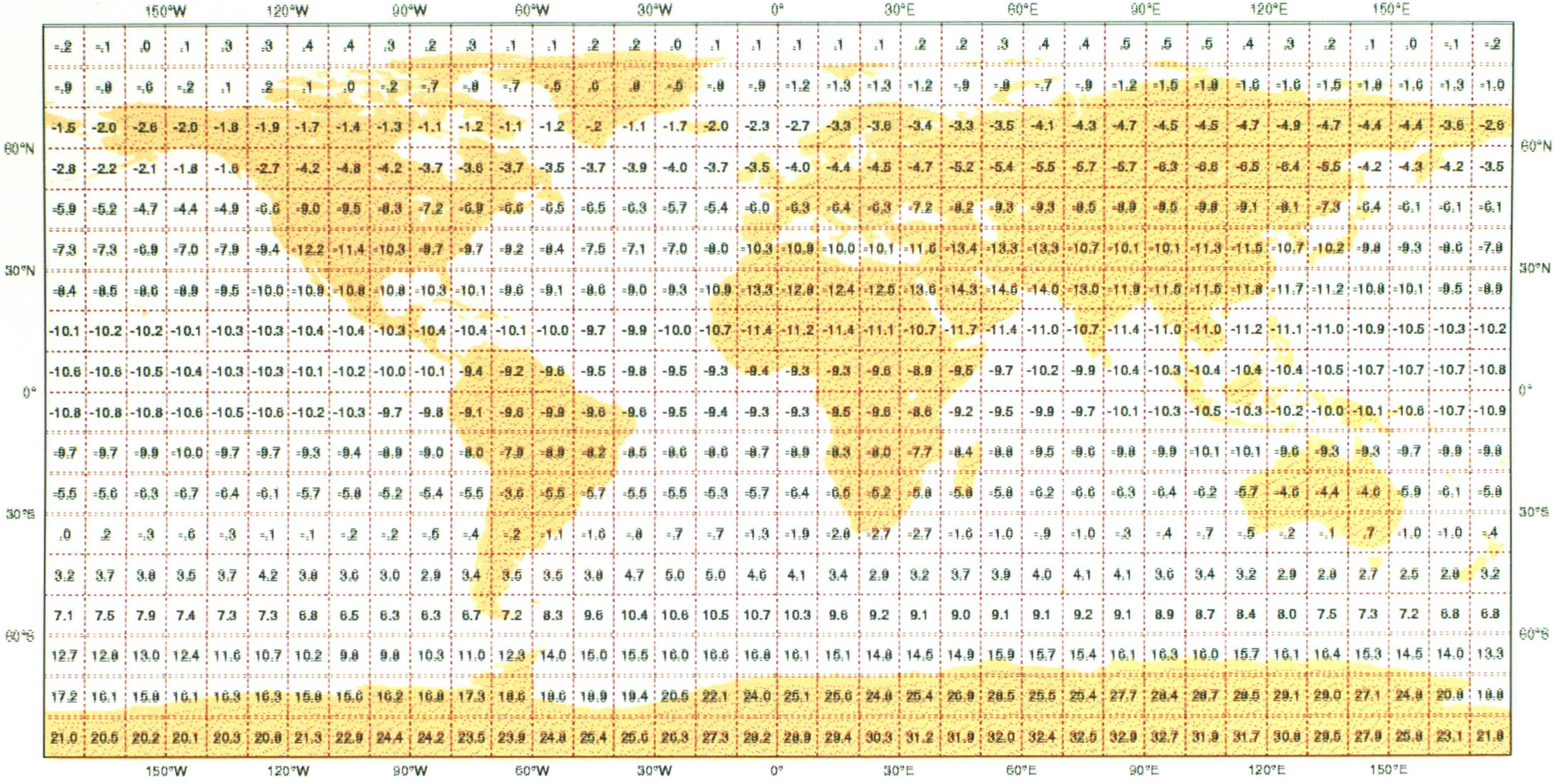

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
-1.8 -1.7 -1.7 -1.7 -1.6 -1.6 -1.6 -1.6 -1.8 -2.3 -1.5 -2.5 -1.7 -1.0 -1.3 -2.2 -1.5 -1.3 -1.5 -1.4 -1.5 -1.4 -1.4 -1.4 -1.3 -1.3 -1.3 -1.9 -1.5 -1.5 -1.6 -1.6 -1.7 -1.8 -1.8 -1.8
-1.9 -2.3 -2.3 -1.8 -1.6 -2.0 -3.6 -3.1 -3.5 -5.3 -4.0 -1.6 -1.2 2.6 3.1 -1.6 -1.8 -4.0 -7.0 -7.1 -6.2 -5.6 -4.6 -3.2 -2.2 -3.6 -6.4 -9.0 -10.5 -7.8 -6.0 -3.1 -5.0 -3.4 -2.2 -1.9
-8.3 -11.7 -15.4 -12.7 -11.9 -12.3 -12.0 -11.6 -10.7 -6.4 -5.6 -4.6 -6.3 -.2 -4.7 -8.0 -9.4 -10.5 -12.6 -15.3 -16.8 -15.9 -14.4 -14.2 -16.3 -17.0 -19.0 -17.8 -18.5 -20.0 -19.7 -17.8 -16.2 -17.2 -15.8 -13.7
-9.9 -11.0 -12.7 -13.3 -11.7 -13.1 -16.9 -18.1 -15.2 -11.3 -12.7 -13.3 -10.3 -10.9 -12.8 -13.9 -14.5 -14.6 -16.2 -18.1 -18.9 -18.9 -19.4 -19.8 -21.0 -20.7 -19.5 -20.0 -20.8 -19.3 -19.2 -16.5 -11.1 -11.5 -11.0 -9.6
-12.8 -13.0 -13.8 -14.5 -14.9 -17.7 -22.6 -24.2 -22.2 -20.0 -20.1 -17.7 -16.5 -16.6 -18.0 -17.8 -18.0 -19.1 -20.0 -20.6 -20.6 -21.9 -22.5 -26.7 -28.9 -23.3 -23.6 -23.2 -24.7 -23.0 -20.4 -17.8 -14.3 -12.0 -12.1 -12.7
-20.3 -20.9 -21.2 -20.3 -19.3 -19.3 -27.2 -26.2 -24.9 -23.1 -22.8 -22.6 -22.1 -21.6 -21.5 -21.2 -21.4 -26.2 -29.0 -26.8 -26.3 -26.5 -29.3 -28.0 -28.4 -17.0 -13.3 -12.2 -19.7 -23.5 -22.4 -21.6 -20.5 -20.2 -20.1 -20.2
-23.3 -23.8 -23.5 -22.8 -21.8 -21.0 -22.5 -22.8 -24.7 -24.3 -24.4 -24.0 -23.8 -23.7 -23.3 -23.1 -26.3 -33.9 -32.5 -31.2 -31.6 -31.2 -31.8 -32.2 -28.1 -23.7 -18.7 -17.8 -19.9 -23.5 -24.6 -24.2 -23.9 -23.7 -23.3 -23.5
-24.5 -24.7 -24.0 -23.5 -23.2 -22.4 -21.9 -22.1 -22.1 -23.1 -24.3 -24.1 -24.2 -23.5 -22.8 -23.3 -25.9 -27.6 -26.8 -27.1 -25.3 -22.4 -24.6 -24.5 -23.2 -20.9 -22.3 -21.5 -21.9 -23.0 -23.3 -23.5 -23.5 -23.8 -23.6 -24.0
-23.1 -23.2 -23.1 -23.1 -23.0 -22.5 -22.3 -22.3 -21.8 -21.6 -20.0 -20.2 -21.8 -22.6 -22.8 -22.3 -21.3 -21.4 -21.1 -21.2 -21.5 -18.8 -21.7 -23.7 -24.1 -23.0 -23.0 -22.5 -22.8 -22.4 -22.2 -21.8 -22.2 -22.8 -23.0 -23.2
-24.5 -25.2 -25.4 -25.4 -25.2 -24.8 -24.2 -23.4 -22.4 -21.0 -20.4 -23.0 -24.2 -23.7 -23.4 -24.3 -23.3 -22.7 -22.1 -22.6 -22.5 -18.4 -23.1 -23.3 -23.5 -22.7 -22.4 -23.0 -23.7 -23.1 -22.5 -21.2 -20.6 -22.0 -23.0 -23.7
-23.6 -24.0 -24.5 -25.0 -25.1 -24.4 -23.7 -22.9 -21.9 -20.3 -15.3 -17.2 -21.8 -18.0 -23.2 -23.4 -22.7 -22.1 -21.1 -18.0 -17.6 -18.2 -22.3 -22.7 -23.1 -22.9 -22.5 -22.9 -23.5 -24.3 -22.0 -20.4 -21.4 -22.8 -22.9 -23.2
-20.7 -20.5 -20.5 -20.6 -20.9 -21.1 -21.0 -20.5 -19.8 -19.2 -17.0 -7.0 -15.3 -18.5 -21.3 -21.2 -20.5 -20.0 -19.6 -15.9 -11.6 -20.1 -21.0 -21.5 -20.8 -20.7 -20.3 -20.1 -20.6 -16.7 -11.6 -11.0 -12.5 -19.5 -20.8 -20.7
-15.9 -16.0 -15.9 -15.6 -15.4 -15.3 -15.5 -15.4 -15.2 -15.1 -11.9 -6.3 -13.1 -17.6 -17.0 -16.7 -15.9 -15.7 -16.0 -16.5 -14.7 -18.6 -17.5 -17.0 -15.8 -15.2 -14.4 -14.3 -15.1 -14.6 -13.4 -12.8 -8.6 -16.9 -16.9 -15.6
-11.7 -11.7 -11.7 -11.3 -10.9 -10.4 -10.2 -9.8 -9.6 -9.7 -5.9 -5.8 -9.6 -10.7 -8.9 -8.5 -8.3 -7.7 -7.8 -8.6 -9.0 -8.4 -7.7 -8.3 -9.1 -8.4 -9.3 -9.6 -9.3 -9.6 -10.3 -11.0 -11.4 -12.3 -11.4 -9.9
-6.8 -6.3 -5.6 -5.7 -6.4 -6.7 -6.4 -6.3 -6.0 -6.0 -5.2 -4.9 -3.8 -1.9 -.6 -.7 -1.0 .1 -.5 -1.0 -1.8 -2.1 -1.9 -2.4 -2.6 -1.8 -2.4 -2.9 -2.7 -3.2 -4.2 -4.4 -3.9 -4.9 -6.5 -6.8
2.0 2.3 3.0 1.6 .2 -.5 -1.0 -.7 -.2 .8 2.4 6.6 9.1 10.2 9.7 9.3 10.0 10.5 8.6 6.0 5.8 5.5 8.2 12.9 11.4 10.0 13.6 14.8 14.0 12.5 12.6 15.1 11.6 9.0 6.1 3.7
10.5 8.1 8.2 10.8 13.0 13.9 13.1 13.0 17.1 19.0 19.5 24.4 19.5 18.3 17.8 20.9 25.9 32.7 35.8 36.6 33.1 36.3 42.5 48.0 39.5 39.1 44.9 48.2 49.7 48.0 49.4 50.8 47.7 41.7 24.9 14.5
23.9 22.2 22.5 25.3 25.4 26.1 27.7 32.4 37.0 37.4 34.5 34.2 38.2 38.1 39.4 42.4 44.9 47.3 48.7 49.0 50.0 51.6 52.5 51.6 52.5 53.1 54.6 55.2 55.3 55.4 53.5 50.5 46.5 40.6 29.8 25.1

Figure 27. ATOVS SD O-B brightness temperature differences (deg C). JULY 2005
Channel: HIRS8 (Surface)
NOAA15, using all observations



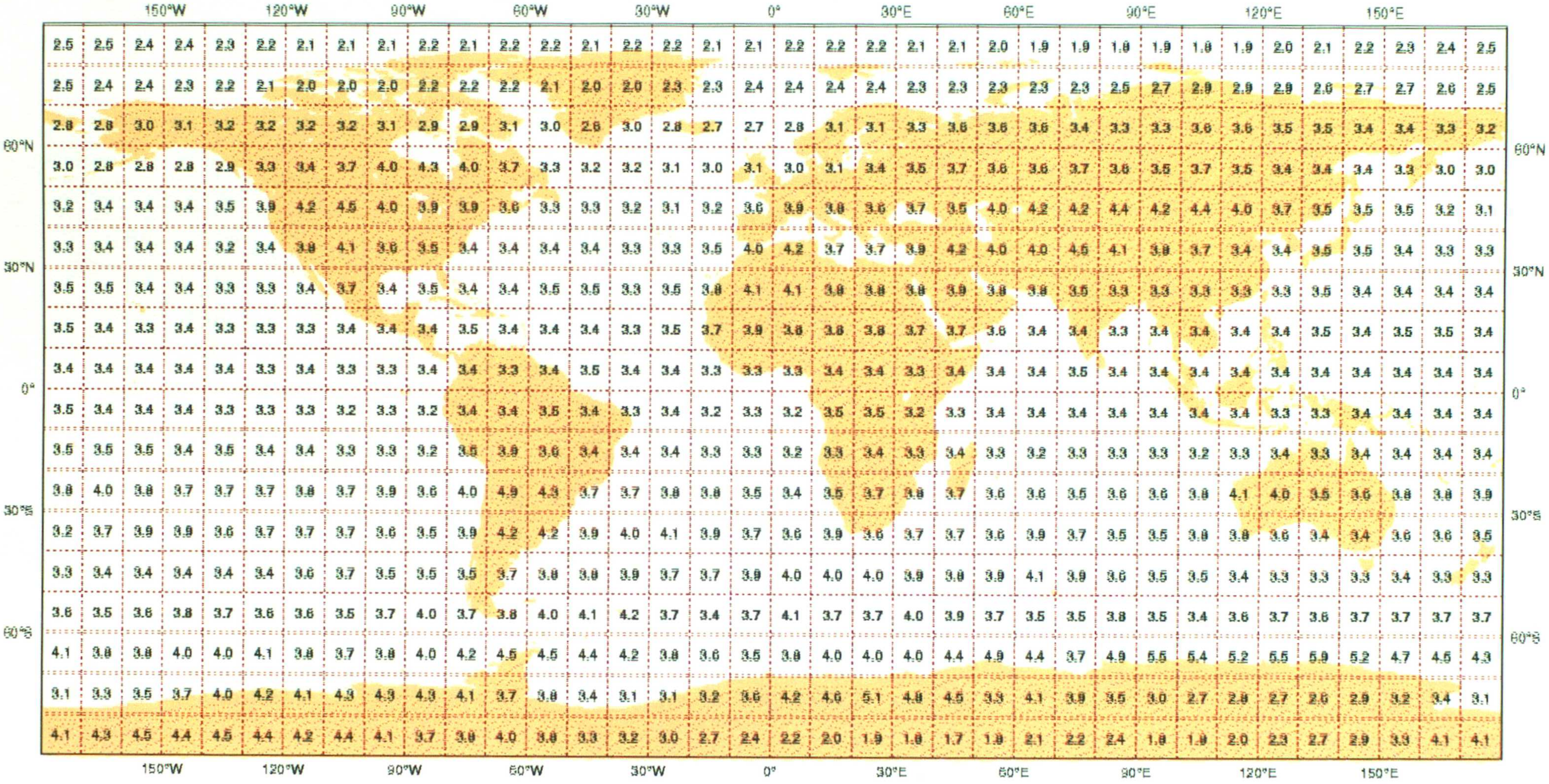
.6	.5	.5	.5	.5	.4	.4	.4	1.1	2.3	.8	2.4	1.5	1.4	2.4	2.0	.6	.6	.5	.5	.6	.6	.6	.5	.6	.5	.4	1.7	.4	.4	.4	.5	.5	.6	.7	.7
1.1	1.8	2.4	1.2	.7	1.9	3.1	3.1	3.1	4.8	3.6	1.1	2.6	2.8	3.0	3.1	1.7	2.8	2.8	3.6	4.4	3.7	3.1	3.2	2.8	5.0	7.0	7.0	7.8	8.4	8.4	5.5	6.6	4.3	1.2	1.2
4.5	4.6	5.3	6.8	6.2	6.1	6.5	6.0	5.6	4.3	4.0	3.5	2.8	2.9	5.7	5.0	3.4	1.5	1.7	3.8	3.7	4.0	5.1	6.5	6.0	4.9	3.3	4.1	5.0	6.0	6.4	6.5	5.9	6.1	6.0	5.9
.8	1.3	1.7	1.2	3.9	4.0	4.6	5.0	6.2	7.8	6.1	5.3	3.2	2.7	1.7	1.4	1.3	2.2	2.3	3.0	2.8	2.9	3.9	4.4	4.6	4.1	3.8	4.6	5.0	4.8	4.6	5.6	3.6	3.1	2.8	1.2
2.3	2.2	2.0	1.7	1.5	4.7	6.2	5.9	4.3	4.1	4.1	3.1	3.3	3.2	1.9	1.6	1.4	3.7	4.2	4.5	3.8	3.3	4.4	5.2	6.2	7.1	7.5	7.0	6.7	5.4	3.8	2.9	2.8	3.0	2.6	2.4
2.1	2.5	2.1	1.9	1.5	3.5	6.3	6.4	3.8	3.0	2.3	2.1	1.7	1.8	1.5	1.1	1.1	6.2	6.6	3.7	3.5	5.6	8.8	6.4	7.1	10.3	10.6	6.9	6.8	3.9	2.6	2.7	2.3	2.3	2.4	2.2
1.6	1.3	.9	.8	.9	.9	3.0	4.7	2.9	2.0	1.7	1.7	1.7	1.3	1.1	1.0	5.8	7.4	7.1	5.5	5.3	5.8	6.8	5.0	4.9	4.5	5.0	4.4	3.4	2.5	1.9	1.8	1.9	1.8	1.7	1.5
1.4	1.3	1.3	1.4	1.5	1.7	1.6	2.0	2.8	2.4	2.1	2.0	1.9	1.7	1.7	1.9	4.8	5.6	5.4	5.3	5.5	5.3	4.3	3.4	1.9	2.1	1.9	1.9	2.4	1.9	1.9	1.9	2.0	1.7	1.7	1.7
1.9	2.0	2.0	1.9	1.9	1.9	1.8	1.6	1.4	1.5	2.5	2.0	2.0	1.7	2.0	1.8	1.6	1.7	1.7	2.2	2.1	3.0	3.1	1.4	1.6	1.9	1.7	1.8	1.7	1.8	1.6	1.7	1.8	1.9	1.9	2.0
1.9	1.6	1.5	1.3	1.1	1.0	.9	1.0	1.0	1.3	3.7	2.7	3.0	3.1	2.4	1.0	1.1	1.0	.9	3.5	4.5	3.8	1.3	1.6	1.9	2.0	1.9	1.9	2.0	2.0	2.0	2.2	2.2	1.8	1.9	2.0
1.8	2.0	1.8	1.5	1.2	1.0	1.0	.9	.9	.9	6.3	8.8	4.6	4.7	1.9	1.0	1.0	.9	1.0	4.9	4.9	4.3	4.0	1.4	1.2	1.3	1.5	1.4	1.4	1.6	4.4	4.3	3.0	1.8	2.0	2.2
1.7	1.9	2.0	2.1	2.1	1.9	1.6	1.4	1.1	.9	3.4	10.4	5.5	4.2	1.6	1.4	1.2	1.0	.8	4.7	6.5	4.2	3.6	1.2	1.5	1.4	1.4	1.3	1.5	6.1	5.0	4.7	4.7	4.6	1.4	1.7
1.6	1.7	1.5	1.6	1.5	1.8	2.0	2.1	1.9	1.7	5.3	5.4	4.1	2.0	1.9	2.0	2.0	2.1	1.9	2.4	5.7	2.2	1.7	1.6	1.5	1.7	1.8	1.8	1.9	4.0	3.7	4.2	4.2	3.5	1.6	3.1
1.5	1.1	1.1	1.2	1.3	1.4	1.6	1.4	1.4	1.5	6.4	4.7	2.2	2.4	2.9	3.1	2.9	2.9	2.6	3.4	3.6	3.1	3.0	3.4	3.7	3.1	2.1	1.8	2.1	1.9	1.7	1.7	2.4	2.1	3.0	2.7
1.9	2.2	2.7	2.8	2.3	1.6	1.2	1.2	1.1	1.1	2.8	2.2	2.4	3.1	3.2	2.9	2.8	3.1	2.5	1.8	1.0	1.0	1.1	1.1	.9	1.5	1.8	1.6	1.3	1.2	1.5	1.8	2.4	2.5	2.1	1.3
4.2	3.7	3.5	3.4	2.8	2.6	2.5	2.5	2.9	4.0	5.0	8.9	6.8	5.7	5.2	5.0	5.0	5.1	5.4	5.2	5.0	5.6	9.9	13.1	11.7	8.1	12.7	15.1	15.2	13.6	14.5	16.2	12.4	9.3	6.1	5.7
5.4	4.7	6.0	8.1	9.8	10.6	10.3	10.9	11.5	11.7	9.8	8.0	6.0	6.2	5.4	8.8	10.5	11.5	12.8	12.9	13.8	12.0	11.3	7.4	9.0	9.2	8.0	6.1	6.5	8.2	7.5	5.9	6.6	7.9	10.6	5.4
10.0	9.1	9.3	8.5	8.6	8.6	8.6	10.0	8.9	7.0	7.4	8.3	8.4	8.1	7.8	5.9	5.6	5.7	5.6	5.3	5.3	5.4	5.5	5.5	5.7	5.6	5.6	4.4	4.4	4.6	5.4	6.6	7.1	8.6	11.8	11.0

Figure 28. ATOVS MEAN O-B brightness temperature differences (deg C). JULY 2005
Channel: HIRS15 (700 hPa)
NOAA15, using all observations



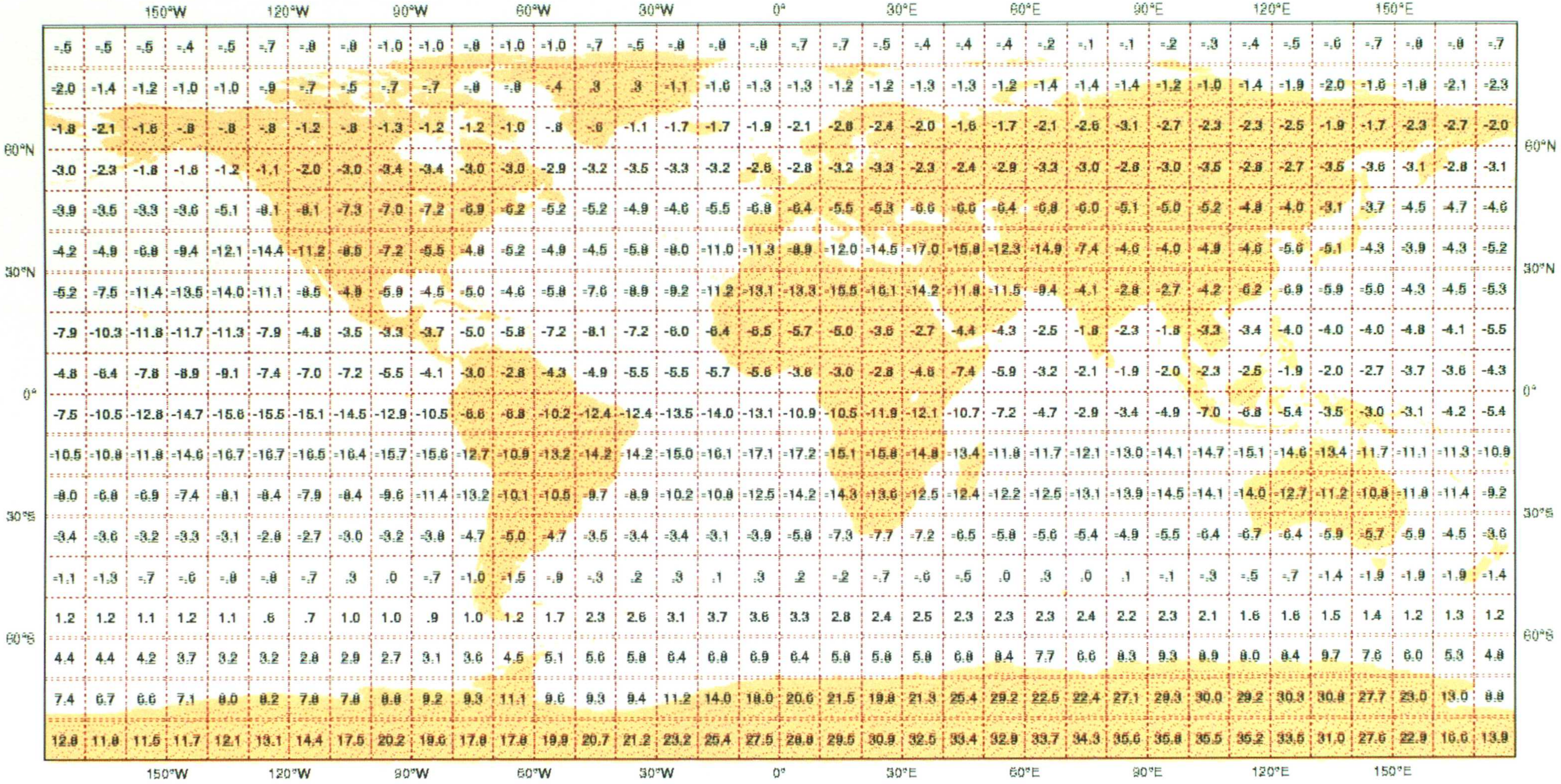
-.2	-.1	.0	.1	.3	.3	.4	.4	.3	.2	.3	.1	.1	.2	.2	.0	.1	.1	.1	.1	.1	.2	.2	.3	.4	.4	.5	.5	.5	.4	.3	.2	.1	.0	-.1	-.2
-.9	-.8	-.6	-.2	.1	.2	.1	.0	-.2	-.7	-.8	-.7	-.5	.6	.8	-.5	-.8	-.9	-1.2	-1.3	-1.3	-1.2	-.9	-.8	-.7	-.9	-1.2	-1.5	-1.8	-1.6	-1.6	-1.5	-1.8	-1.6	-1.3	-1.0
-1.5	-2.0	-2.6	-2.0	-1.8	-1.9	-1.7	-1.4	-1.3	-1.1	-1.2	-1.1	-1.2	-.2	-1.1	-1.7	-2.0	-2.3	-2.7	-3.3	-3.6	-3.4	-3.3	-3.5	-4.1	-4.3	-4.7	-4.5	-4.5	-4.7	-4.9	-4.7	-4.4	-4.4	-3.6	-2.6
-2.8	-2.2	-2.1	-1.8	-1.6	-2.7	-4.2	-4.8	-4.2	-3.7	-3.8	-3.7	-3.5	-3.7	-3.9	-4.0	-3.7	-3.5	-4.0	-4.4	-4.5	-4.7	-5.2	-5.4	-5.5	-5.7	-5.7	-6.3	-6.6	-6.5	-6.4	-5.5	-4.2	-4.3	-4.2	-3.5
-5.9	-5.2	-4.7	-4.4	-4.9	-6.6	-9.0	-9.5	-8.3	-7.2	-6.9	-6.6	-6.5	-6.5	-6.3	-5.7	-5.4	-6.0	-6.3	-6.4	-6.3	-7.2	-8.2	-9.3	-9.3	-8.5	-8.9	-9.5	-9.8	-9.1	-8.1	-7.3	-6.4	-6.1	-6.1	-6.1
-7.3	-7.3	-6.9	-7.0	-7.9	-9.4	-12.2	-11.4	-10.3	-9.7	-9.7	-9.2	-8.4	-7.5	-7.1	-7.0	-8.0	-10.3	-10.9	-10.0	-10.1	-11.6	-13.4	-13.3	-13.3	-10.7	-10.1	-10.1	-11.3	-11.5	-10.7	-10.2	-9.8	-9.3	-8.6	-7.8
-8.4	-8.5	-8.6	-8.9	-9.5	-10.0	-10.9	-10.8	-10.8	-10.3	-10.1	-9.6	-9.1	-8.6	-9.0	-9.3	-10.9	-13.3	-12.8	-12.4	-12.5	-13.6	-14.3	-14.6	-14.0	-13.0	-11.9	-11.5	-11.6	-11.8	-11.7	-11.2	-10.8	-10.1	-9.5	-8.9
-10.1	-10.2	-10.2	-10.1	-10.3	-10.3	-10.4	-10.4	-10.3	-10.4	-10.4	-10.1	-10.0	-9.7	-9.9	-10.0	-10.7	-11.4	-11.2	-11.4	-11.1	-10.7	-11.7	-11.4	-11.0	-10.7	-11.4	-11.0	-11.0	-11.2	-11.1	-11.0	-10.9	-10.5	-10.3	-10.2
-10.6	-10.6	-10.5	-10.4	-10.3	-10.3	-10.1	-10.2	-10.0	-10.1	-9.4	-9.2	-9.6	-9.5	-9.8	-9.5	-9.3	-9.4	-9.3	-9.3	-9.6	-8.9	-9.5	-9.7	-10.2	-9.9	-10.4	-10.3	-10.4	-10.4	-10.4	-10.5	-10.7	-10.7	-10.7	-10.8
-10.8	-10.8	-10.8	-10.6	-10.5	-10.6	-10.2	-10.3	-9.7	-9.8	-9.1	-9.6	-9.9	-9.6	-9.6	-9.5	-9.4	-9.3	-9.3	-9.5	-9.6	-8.6	-9.2	-9.5	-9.9	-9.7	-10.1	-10.3	-10.5	-10.3	-10.2	-10.0	-10.1	-10.6	-10.7	-10.9
-9.7	-9.7	-9.9	-10.0	-9.7	-9.7	-9.3	-9.4	-8.9	-9.0	-8.0	-7.9	-8.9	-8.2	-8.5	-8.6	-8.6	-8.7	-8.9	-8.3	-8.0	-7.7	-8.4	-8.8	-9.5	-9.6	-9.8	-9.9	-10.1	-10.1	-9.6	-9.3	-9.3	-9.7	-9.9	-9.8
-5.5	-5.6	-6.3	-6.7	-6.4	-6.1	-5.7	-5.8	-5.2	-5.4	-5.5	-3.6	-6.5	-5.7	-5.5	-5.5	-5.3	-5.7	-6.4	-6.5	-6.2	-5.8	-5.8	-5.8	-6.2	-6.6	-6.3	-6.4	-6.2	-5.7	-4.6	-4.4	-4.6	-5.9	-6.1	-5.8
.0	.2	-.3	-.6	-.3	-.1	-.1	-.2	-.2	-.5	-.4	-.2	-1.1	-1.6	-.8	-.7	-.7	-1.3	-1.9	-2.8	-2.7	-2.7	-1.6	-1.0	-.9	-1.0	-.3	-.4	-.7	-.5	-.2	-.1	.7	-1.0	-1.0	-.4
3.2	3.7	3.8	3.5	3.7	4.2	3.8	3.6	3.0	2.9	3.4	3.5	3.5	3.8	4.7	5.0	5.0	4.6	4.1	3.4	2.9	3.2	3.7	3.9	4.0	4.1	4.1	3.6	3.4	3.2	2.9	2.8	2.7	2.5	2.8	3.2
7.1	7.5	7.9	7.4	7.3	7.3	6.8	6.5	6.3	6.3	6.7	7.2	8.3	9.6	10.4	10.6	10.5	10.7	10.3	9.6	9.2	9.1	9.0	9.1	9.1	9.2	9.1	8.9	8.7	8.4	8.0	7.5	7.3	7.2	6.8	6.8
12.7	12.8	13.0	12.4	11.6	10.7	10.2	9.8	9.8	10.3	11.0	12.3	14.0	15.0	15.5	16.0	16.6	16.8	16.1	15.1	14.8	14.5	14.9	15.9	15.7	15.4	16.1	16.3	16.0	15.7	16.1	16.4	15.3	14.5	14.0	13.3
17.2	16.1	15.8	16.1	16.3	16.3	15.8	15.6	16.2	16.8	17.3	18.6	18.6	18.9	19.4	20.5	22.1	24.0	25.1	25.6	24.8	25.4	26.9	28.5	25.5	25.4	27.7	28.4	28.7	28.5	29.1	29.0	27.1	24.8	20.8	18.8
21.0	20.5	20.2	20.1	20.3	20.8	21.3	22.9	24.4	24.2	23.5	23.9	24.8	25.4	25.6	26.3	27.3	28.2	28.9	29.4	30.3	31.2	31.8	32.0	32.4	32.5	32.9	32.7	31.9	31.7	30.8	29.5	27.9	25.8	23.1	21.8

Figure 29. ATOVS SD O-B brightness temperature differences (deg C). JULY 2005
Channel: HIRS15 (700 hPa)
NOAA15, using all observations



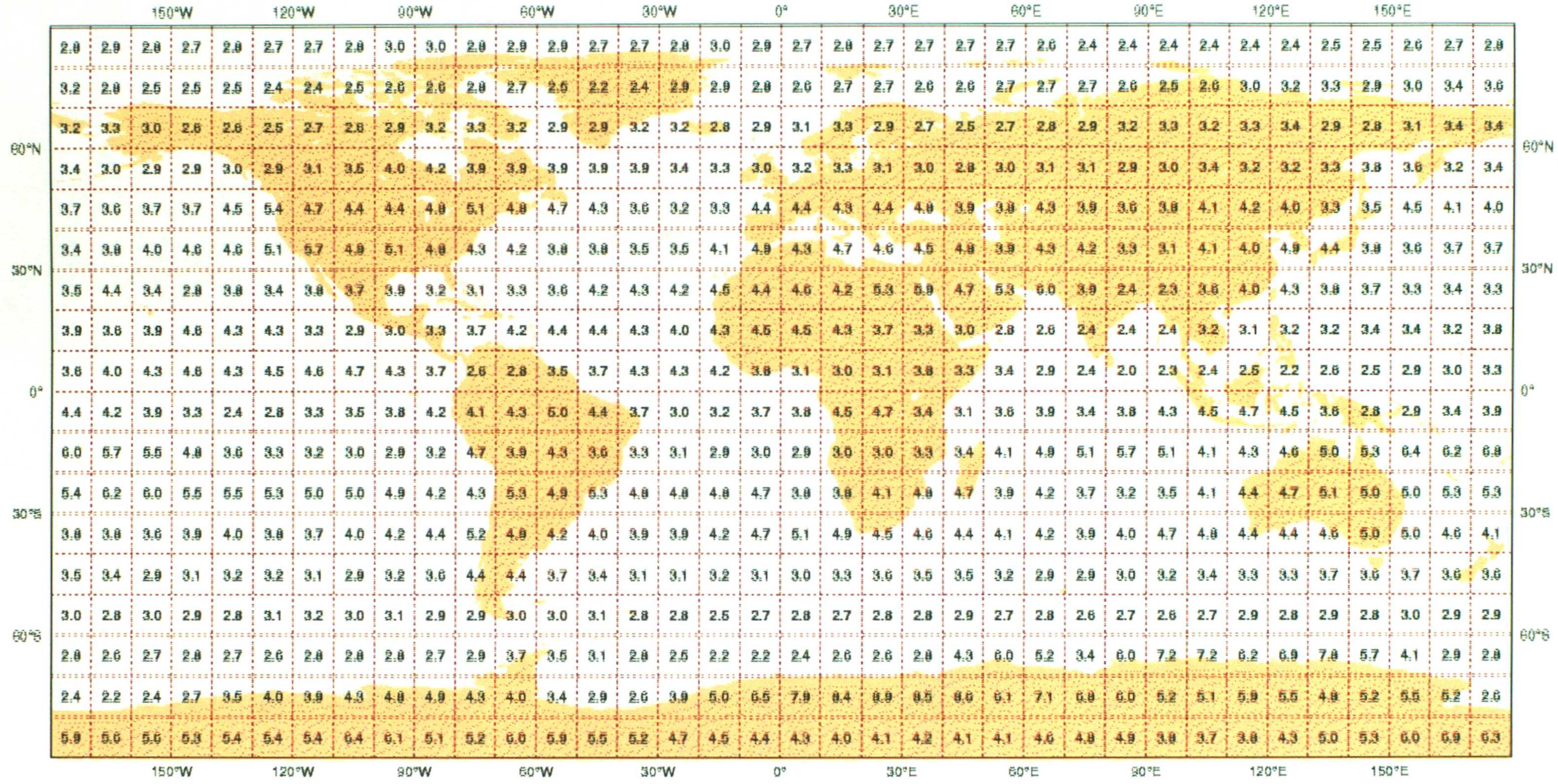
2.5	2.5	2.4	2.4	2.3	2.2	2.1	2.1	2.1	2.2	2.1	2.2	2.2	2.1	2.2	2.2	2.1	2.1	2.2	2.2	2.2	2.1	2.1	2.0	1.9	1.9	1.8	1.9	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5
2.5	2.4	2.4	2.3	2.2	2.1	2.0	2.0	2.0	2.2	2.2	2.2	2.1	2.0	2.0	2.3	2.3	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.5	2.7	2.9	2.9	2.9	2.6	2.7	2.7	2.6	2.5
2.8	2.8	3.0	3.1	3.2	3.2	3.2	3.2	3.1	2.9	2.9	3.1	3.0	2.6	3.0	2.8	2.7	2.7	2.8	3.1	3.1	3.3	3.6	3.6	3.6	3.4	3.3	3.3	3.6	3.6	3.5	3.5	3.4	3.4	3.3	3.2
3.0	2.8	2.8	2.8	2.9	3.3	3.4	3.7	4.0	4.3	4.0	3.7	3.3	3.2	3.2	3.1	3.0	3.1	3.0	3.1	3.4	3.5	3.7	3.6	3.6	3.7	3.6	3.5	3.7	3.5	3.4	3.4	3.4	3.3	3.0	3.0
3.2	3.4	3.4	3.4	3.5	3.9	4.2	4.5	4.0	3.9	3.9	3.6	3.3	3.3	3.2	3.1	3.2	3.6	3.9	3.8	3.6	3.7	3.5	4.0	4.2	4.2	4.4	4.2	4.4	4.0	3.7	3.5	3.5	3.5	3.2	3.1
3.3	3.4	3.4	3.4	3.2	3.4	3.8	4.1	3.6	3.5	3.4	3.4	3.4	3.4	3.3	3.3	3.5	4.0	4.2	3.7	3.7	3.9	4.2	4.0	4.0	4.6	4.1	3.8	3.7	3.4	3.4	3.5	3.5	3.4	3.3	3.3
3.5	3.5	3.4	3.4	3.3	3.3	3.4	3.7	3.4	3.5	3.4	3.4	3.5	3.5	3.3	3.5	3.8	4.1	4.1	3.8	3.8	3.8	3.9	3.8	3.8	3.5	3.3	3.3	3.3	3.3	3.3	3.5	3.4	3.4	3.4	3.4
3.5	3.4	3.3	3.4	3.3	3.3	3.3	3.4	3.4	3.4	3.5	3.4	3.4	3.4	3.3	3.5	3.7	3.9	3.8	3.8	3.8	3.7	3.7	3.6	3.4	3.4	3.3	3.4	3.4	3.4	3.4	3.5	3.4	3.5	3.5	3.4
3.4	3.4	3.4	3.4	3.4	3.3	3.4	3.3	3.3	3.4	3.4	3.3	3.4	3.5	3.4	3.4	3.3	3.3	3.3	3.4	3.4	3.3	3.4	3.4	3.4	3.5	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
3.5	3.4	3.4	3.4	3.3	3.3	3.3	3.2	3.3	3.2	3.4	3.4	3.5	3.4	3.3	3.4	3.2	3.3	3.2	3.5	3.5	3.2	3.3	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.3	3.3	3.4	3.4	3.4	3.4
3.5	3.5	3.5	3.4	3.5	3.4	3.4	3.3	3.3	3.2	3.5	3.9	3.6	3.4	3.4	3.4	3.3	3.3	3.2	3.3	3.4	3.3	3.4	3.3	3.2	3.3	3.3	3.3	3.2	3.3	3.4	3.3	3.4	3.4	3.4	3.4
3.8	4.0	3.8	3.7	3.7	3.7	3.8	3.7	3.9	3.6	4.0	4.9	4.3	3.7	3.7	3.8	3.8	3.5	3.4	3.5	3.7	3.8	3.7	3.6	3.6	3.5	3.6	3.6	3.8	4.1	4.0	3.5	3.6	3.8	3.8	3.9
3.2	3.7	3.9	3.9	3.6	3.7	3.7	3.7	3.6	3.5	3.9	4.2	4.2	3.9	4.0	4.1	3.9	3.7	3.6	3.9	3.6	3.7	3.7	3.6	3.9	3.7	3.5	3.5	3.8	3.8	3.6	3.4	3.4	3.6	3.6	3.5
3.3	3.4	3.4	3.4	3.4	3.4	3.6	3.7	3.5	3.5	3.5	3.7	3.8	3.8	3.9	3.7	3.7	3.9	4.0	4.0	4.0	3.9	3.8	3.9	4.1	3.9	3.6	3.5	3.5	3.4	3.3	3.3	3.3	3.4	3.3	3.3
3.6	3.5	3.6	3.8	3.7	3.6	3.6	3.5	3.7	4.0	3.7	3.8	4.0	4.1	4.2	3.7	3.4	3.7	4.1	3.7	3.7	4.0	3.9	3.7	3.5	3.5	3.8	3.5	3.4	3.6	3.7	3.6	3.7	3.7	3.7	3.7
4.1	3.8	3.8	4.0	4.0	4.1	3.8	3.7	3.8	4.0	4.2	4.5	4.5	4.4	4.2	3.8	3.6	3.5	3.8	4.0	4.0	4.0	4.4	4.9	4.4	3.7	4.9	5.5	5.4	5.2	5.5	5.9	5.2	4.7	4.5	4.3
3.1	3.3	3.5	3.7	4.0	4.2	4.1	4.3	4.3	4.3	4.1	3.7	3.8	3.4	3.1	3.1	3.2	3.6	4.2	4.6	5.1	4.8	4.5	3.3	4.1	3.9	3.5	3.0	2.7	2.8	2.7	2.6	2.9	3.2	3.4	3.1
4.1	4.3	4.5	4.4	4.5	4.4	4.2	4.4	4.1	3.7	3.8	4.0	3.8	3.3	3.2	3.0	2.7	2.4	2.2	2.0	1.9	1.8	1.7	1.8	2.1	2.2	2.4	1.8	1.8	2.0	2.3	2.7	2.9	3.3	4.1	4.1

Figure 30. ATOVS MEAN O-B brightness temperature differences (deg C). JULY 2005
Channel: HIRS11 (500 - 700 hPa)
NOAA15, using all observations



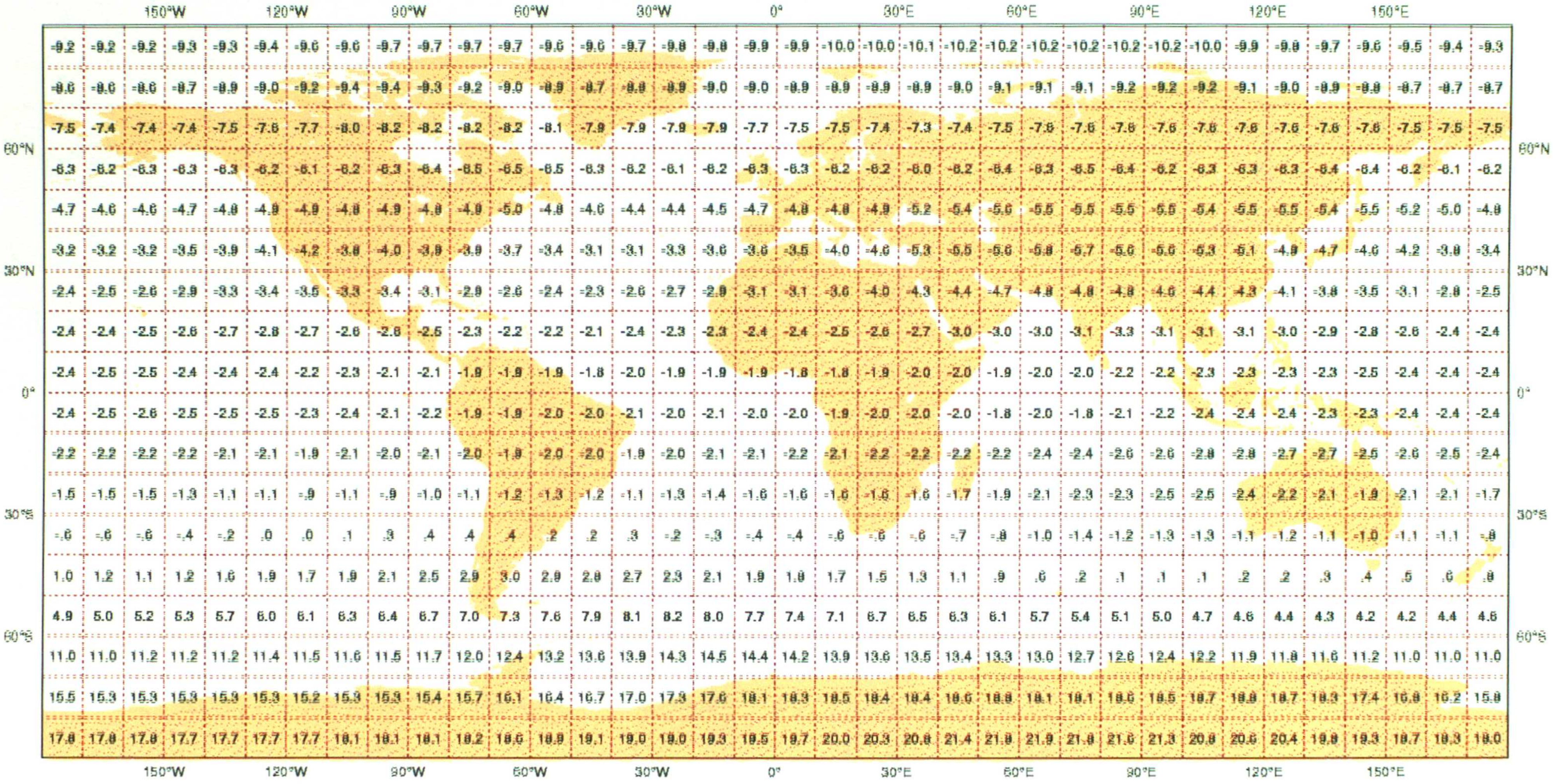
-.5	-.5	-.5	-.4	-.5	-.7	-.8	-.8	-1.0	-1.0	-.8	-1.0	-1.0	-.7	-.5	-.8	-.8	-.8	-.7	-.7	-.5	-.4	-.4	-.4	-.2	-.1	-.1	-.2	-.3	-.4	-.5	-.6	-.7	-.8	-.8	-.7
-2.0	-1.4	-1.2	-1.0	-1.0	-.9	-.7	-.5	-.7	-.7	-.8	-.8	-.4	.3	.3	-1.1	-1.6	-1.3	-1.3	-1.2	-1.2	-1.3	-1.3	-1.2	-1.4	-1.4	-1.4	-1.2	-1.0	-1.4	-1.9	-2.0	-1.6	-1.8	-2.1	-2.3
-1.8	-2.1	-1.6	-.8	-.8	-.8	-1.2	-.8	-1.3	-1.2	-1.2	-1.0	-.8	-.6	-1.1	-1.7	-1.7	-1.9	-2.1	-2.8	-2.4	-2.0	-1.6	-1.7	-2.1	-2.6	-3.1	-2.7	-2.3	-2.3	-2.5	-1.9	-1.7	-2.3	-2.7	-2.0
-3.0	-2.3	-1.8	-1.6	-1.2	-1.1	-2.0	-3.0	-3.4	-3.4	-3.0	-3.0	-2.9	-3.2	-3.5	-3.3	-3.2	-2.6	-2.8	-3.2	-3.3	-2.3	-2.4	-2.9	-3.3	-3.0	-2.8	-3.0	-3.5	-2.8	-2.7	-3.5	-3.6	-3.1	-2.8	-3.1
-3.9	-3.5	-3.3	-3.6	-5.1	-8.1	-8.1	-7.3	-7.0	-7.2	-6.9	-6.2	-5.2	-5.2	-4.9	-4.6	-5.5	-6.8	-6.4	-5.5	-6.3	-6.6	-6.6	-6.4	-6.8	-6.0	-5.1	-5.0	-5.2	-4.8	-4.0	-3.1	-3.7	-4.5	-4.7	-4.6
-4.2	-4.9	-6.8	-9.4	-12.1	-14.4	-11.2	-8.5	-7.2	-5.5	-4.8	-6.2	-4.9	-4.5	-5.8	-8.0	-11.0	-11.3	-8.9	-12.0	-14.5	-17.0	-15.8	-12.3	-14.9	-7.4	-4.6	-4.0	-4.9	-4.6	-5.6	-5.1	-4.3	-3.9	-4.3	-5.2
-5.2	-7.5	-11.4	-13.5	-14.0	-11.1	-8.5	-4.9	-5.9	-4.5	-5.0	-4.6	-5.8	-7.6	-8.9	-9.2	-11.2	-13.1	-13.3	-15.5	-16.1	-14.2	-11.8	-11.5	-9.4	-4.1	-2.8	-2.7	-4.2	-6.2	-6.9	-5.9	-5.0	-4.3	-4.5	-5.3
-7.9	-10.3	-11.8	-11.7	-11.3	-7.9	-4.8	-3.5	-3.3	-3.7	-5.0	-5.8	-7.2	-8.1	-7.2	-6.0	-6.4	-6.5	-5.7	-5.0	-3.6	-2.7	-4.4	-4.3	-2.5	-1.8	-2.3	-1.8	-3.3	-3.4	-4.0	-4.0	-4.0	-4.8	-4.1	-5.5
-4.8	-6.4	-7.8	-8.9	-9.1	-7.4	-7.0	-7.2	-5.5	-4.1	-3.0	-2.8	-4.3	-4.9	-5.5	-5.5	-5.7	-5.6	-3.6	-3.0	-2.8	-4.6	-7.4	-5.9	-3.2	-2.1	-1.9	-2.0	-2.3	-2.5	-1.9	-2.0	-2.7	-3.7	-3.6	-4.3
-7.5	-10.5	-12.8	-14.7	-15.6	-15.5	-15.1	-14.5	-12.9	-10.5	-6.6	-6.8	-10.2	-12.4	-12.4	-13.5	-14.0	-13.1	-10.9	-10.5	-11.9	-12.1	-10.7	-7.2	-4.7	-2.9	-3.4	-4.9	-7.0	-6.8	-5.4	-3.5	-3.0	-3.1	-4.2	-5.4
-10.5	-10.8	-11.8	-14.6	-16.7	-16.7	-16.5	-16.4	-15.7	-15.6	-12.7	-10.9	-13.2	-14.2	-14.2	-15.0	-16.1	-17.1	-17.2	-15.1	-15.8	-14.8	-13.4	-11.8	-11.7	-12.1	-13.0	-14.1	-14.7	-15.1	-14.6	-13.4	-11.7	-11.1	-11.3	-10.9
-8.0	-6.8	-6.9	-7.4	-8.1	-8.4	-7.9	-8.4	-9.6	-11.4	-13.2	-10.1	-10.5	-9.7	-8.9	-10.2	-10.8	-12.5	-14.2	-14.3	-13.6	-12.5	-12.4	-12.2	-12.5	-13.1	-13.9	-14.5	-14.1	-14.0	-12.7	-11.2	-10.8	-11.8	-11.4	-9.2
-3.4	-3.6	-3.2	-3.3	-3.1	-2.8	-2.7	-3.0	-3.2	-3.8	-4.7	-5.0	-4.7	-3.5	-3.4	-3.4	-3.1	-3.9	-5.8	-7.3	-7.7	-7.2	-6.5	-5.8	-5.6	-5.4	-4.9	-5.5	-6.4	-6.7	-6.4	-5.9	-5.7	-5.9	-4.5	-3.6
-1.1	-1.3	-.7	-.6	-.8	-.8	-.7	.3	.0	-.7	-1.0	-1.5	-.9	-.3	.2	.3	.1	.3	.2	-.2	-.7	-.6	-.5	.0	.3	.0	.1	-.1	-.3	-.5	-.7	-1.4	-1.9	-1.9	-1.9	-1.4
1.2	1.2	1.1	1.2	1.1	.6	.7	1.0	1.0	.9	1.0	1.2	1.7	2.3	2.6	3.1	3.7	3.6	3.3	2.8	2.4	2.5	2.3	2.3	2.3	2.4	2.2	2.3	2.1	1.6	1.6	1.5	1.4	1.2	1.3	1.2
4.4	4.4	4.2	3.7	3.2	3.2	2.8	2.9	2.7	3.1	3.6	4.5	5.1	5.6	5.8	6.4	6.8	6.9	6.4	5.8	5.8	5.8	6.8	8.4	7.7	6.6	8.3	9.3	8.9	8.0	8.4	9.7	7.6	6.0	5.3	4.8
7.4	6.7	6.6	7.1	8.0	8.2	7.8	7.8	8.8	9.2	9.3	11.1	9.6	9.3	9.4	11.2	14.0	18.0	20.6	21.5	19.8	21.3	25.4	29.2	22.5	22.4	27.1	28.3	30.0	29.2	30.3	30.8	27.7	23.0	13.0	8.8
12.8	11.8	11.5	11.7	12.1	13.1	14.4	17.5	20.2	19.6	17.8	17.8	19.9	20.7	21.2	23.2	25.4	27.5	28.8	29.5	30.9	32.5	33.4	32.9	33.7	34.3	35.6	35.8	35.5	35.2	33.5	31.0	27.6	22.9	16.6	13.9

Figure 31. ATOVS SD O-B brightness temperature differences (deg C). JULY 2005
Channel: HIRS11 (500 - 700 hPa)
NOAA15, using all observations



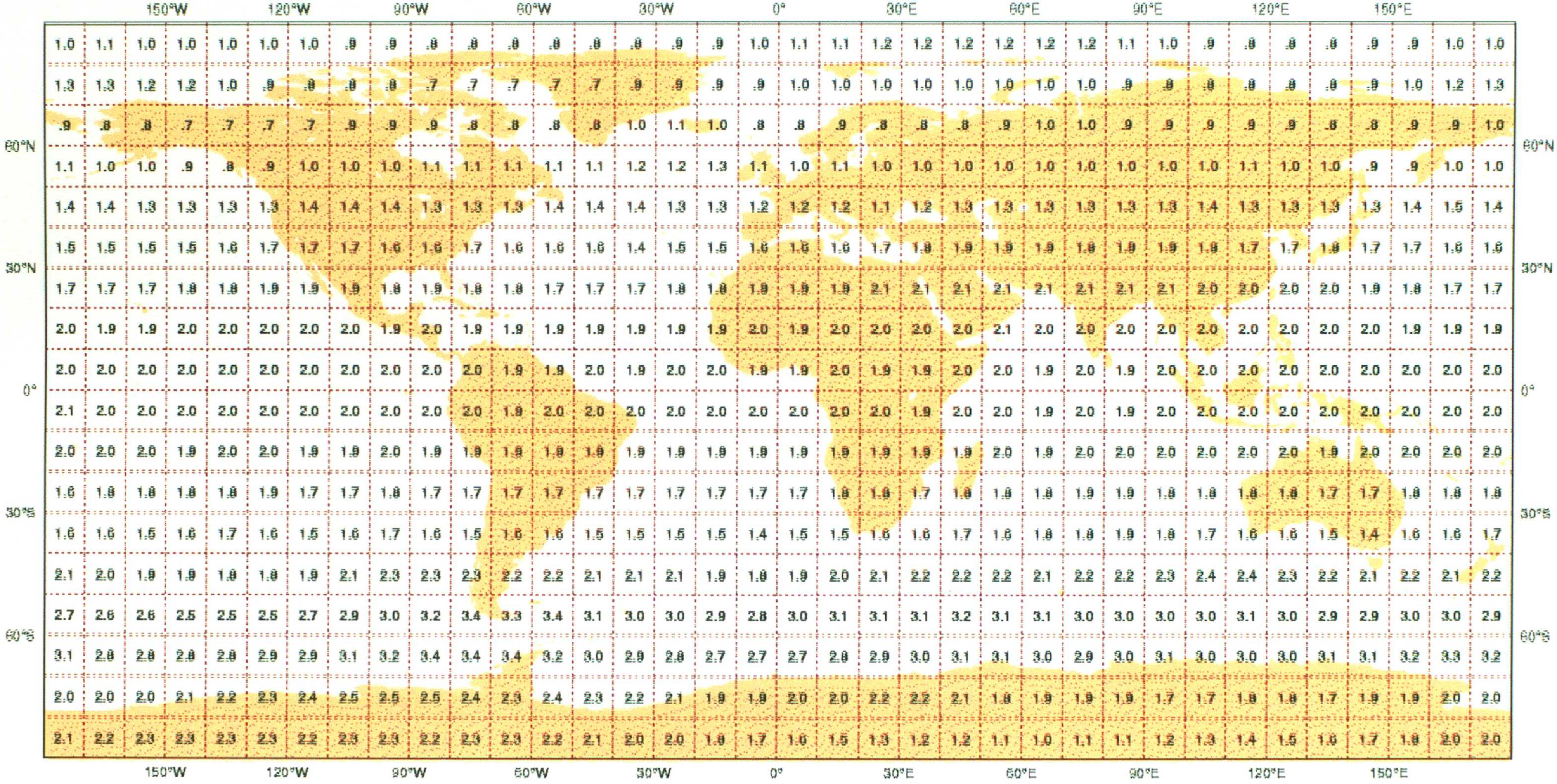
2.8	2.9	2.8	2.7	2.8	2.7	2.7	2.8	3.0	3.0	2.8	2.9	2.9	2.7	2.7	2.8	3.0	2.9	2.7	2.8	2.7	2.7	2.7	2.7	2.6	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.6	2.7	2.8
3.2	2.8	2.5	2.5	2.5	2.4	2.4	2.5	2.6	2.6	2.8	2.7	2.5	2.2	2.4	2.9	2.9	2.8	2.6	2.7	2.7	2.6	2.6	2.7	2.7	2.7	2.6	2.5	2.6	3.0	3.2	3.3	2.9	3.0	3.4	3.6
3.2	3.3	3.0	2.6	2.6	2.5	2.7	2.8	2.9	3.2	3.3	3.2	2.9	2.9	3.2	3.2	2.8	2.9	3.1	3.3	2.9	2.7	2.5	2.7	2.8	2.9	3.2	3.3	3.2	3.3	3.4	2.9	2.8	3.1	3.4	3.4
3.4	3.0	2.9	2.9	3.0	2.9	3.1	3.5	4.0	4.2	3.9	3.9	3.9	3.9	3.9	3.4	3.3	3.0	3.2	3.3	3.1	3.0	2.8	3.0	3.1	3.1	2.9	3.0	3.4	3.2	3.2	3.3	3.8	3.6	3.2	3.4
3.7	3.6	3.7	3.7	4.5	5.4	4.7	4.4	4.4	4.8	5.1	4.8	4.7	4.3	3.6	3.2	3.3	4.4	4.4	4.3	4.4	4.8	3.9	3.8	4.3	3.9	3.6	3.8	4.1	4.2	4.0	3.3	3.5	4.5	4.1	4.0
3.4	3.8	4.0	4.6	4.6	5.1	5.7	4.9	5.1	4.8	4.3	4.2	3.8	3.8	3.5	3.5	4.1	4.9	4.3	4.7	4.6	4.5	4.8	3.9	4.3	4.2	3.3	3.1	4.1	4.0	4.9	4.4	3.8	3.6	3.7	3.7
3.5	4.4	3.4	2.8	3.8	3.4	3.8	3.7	3.9	3.2	3.1	3.3	3.6	4.2	4.3	4.2	4.5	4.4	4.6	4.2	5.3	5.9	4.7	5.3	6.0	3.9	2.4	2.3	3.6	4.0	4.3	3.8	3.7	3.3	3.4	3.3
3.9	3.6	3.9	4.6	4.3	4.3	3.3	2.9	3.0	3.3	3.7	4.2	4.4	4.4	4.3	4.0	4.3	4.5	4.5	4.3	3.7	3.3	3.0	2.8	2.6	2.4	2.4	2.4	3.2	3.1	3.2	3.2	3.4	3.4	3.2	3.8
3.6	4.0	4.3	4.6	4.3	4.5	4.6	4.7	4.3	3.7	2.6	2.8	3.5	3.7	4.3	4.3	4.2	3.8	3.1	3.0	3.1	3.8	3.3	3.4	2.9	2.4	2.0	2.3	2.4	2.5	2.2	2.6	2.5	2.9	3.0	3.3
4.4	4.2	3.9	3.3	2.4	2.8	3.3	3.5	3.8	4.2	4.1	4.3	5.0	4.4	3.7	3.0	3.2	3.7	3.8	4.5	4.7	3.4	3.1	3.6	3.9	3.4	3.8	4.3	4.5	4.7	4.5	3.6	2.8	2.9	3.4	3.9
6.0	5.7	5.5	4.8	3.6	3.3	3.2	3.0	2.9	3.2	4.7	3.9	4.3	3.6	3.3	3.1	2.9	3.0	2.9	3.0	3.0	3.3	3.4	4.1	4.9	5.1	5.7	5.1	4.1	4.3	4.6	5.0	5.3	6.4	6.2	6.8
5.4	6.2	6.0	5.5	5.5	5.3	5.0	5.0	4.9	4.2	4.3	5.3	4.9	5.3	4.8	4.8	4.8	4.7	3.8	3.8	4.1	4.8	4.7	3.9	4.2	3.7	3.2	3.5	4.1	4.4	4.7	5.1	5.0	5.0	5.3	5.3
3.8	3.8	3.6	3.9	4.0	3.8	3.7	4.0	4.2	4.4	5.2	4.9	4.2	4.0	3.9	3.9	4.2	4.7	5.1	4.9	4.5	4.6	4.4	4.1	4.2	3.9	4.0	4.7	4.8	4.4	4.4	4.6	5.0	5.0	4.6	4.1
3.5	3.4	2.9	3.1	3.2	3.2	3.1	2.9	3.2	3.6	4.4	4.4	3.7	3.4	3.1	3.1	3.2	3.1	3.0	3.3	3.6	3.5	3.5	3.2	2.9	2.9	3.0	3.2	3.4	3.3	3.3	3.7	3.6	3.7	3.6	3.6
3.0	2.8	3.0	2.9	2.8	3.1	3.2	3.0	3.1	2.9	2.9	3.0	3.0	3.1	2.8	2.8	2.5	2.7	2.8	2.7	2.8	2.8	2.9	2.7	2.8	2.6	2.7	2.6	2.7	2.9	2.8	2.9	2.8	3.0	2.9	2.9
2.8	2.6	2.7	2.8	2.7	2.6	2.8	2.8	2.8	2.7	2.9	3.7	3.5	3.1	2.8	2.5	2.2	2.2	2.4	2.6	2.6	2.8	4.3	6.0	5.2	3.4	6.0	7.2	7.2	6.2	6.9	7.8	5.7	4.1	2.9	2.8
2.4	2.2	2.4	2.7	3.5	4.0	3.9	4.3	4.8	4.9	4.3	4.0	3.4	2.9	2.6	3.9	5.0	6.5	7.9	8.4	8.9	8.5	8.6	6.1	7.1	6.8	6.0	5.2	5.1	5.9	5.5	4.8	5.2	5.5	5.2	2.6
5.9	5.6	5.6	5.3	5.4	5.4	5.4	6.4	6.1	5.1	5.2	6.0	5.9	5.5	5.2	4.7	4.5	4.4	4.3	4.0	4.1	4.2	4.1	4.1	4.6	4.8	4.9	3.8	3.7	3.8	4.3	5.0	5.3	6.0	6.9	6.3

Figure 32. ATOVS MEAN O-B brightness temperature differences (deg C). JULY 2005
Channel: HIRS4 (400 hPa)
NOAA15, using all observations



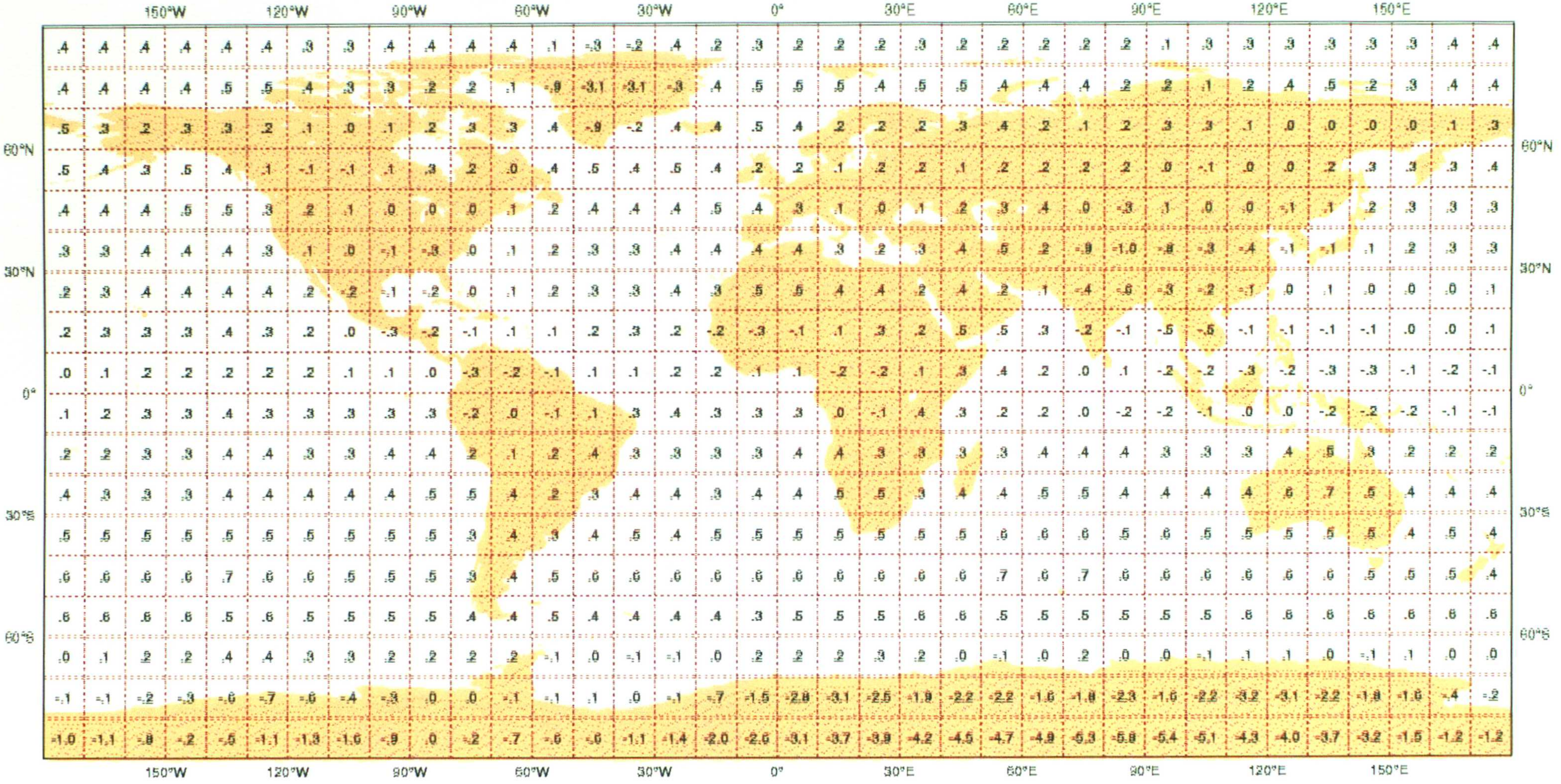
-9.2	-9.2	-9.2	-9.3	-9.3	-9.4	-9.6	-9.6	-9.7	-9.7	-9.7	-9.7	-9.6	-9.6	-9.7	-9.8	-9.8	-9.9	-9.9	-10.0	-10.0	-10.1	-10.2	-10.2	-10.2	-10.2	-10.2	-10.2	-10.0	-9.9	-9.8	-9.7	-9.6	-9.5	-9.4	-9.3
-8.6	-8.6	-8.6	-8.7	-8.9	-9.0	-9.2	-9.4	-9.4	-9.3	-9.2	-9.0	-8.9	-8.7	-8.8	-8.9	-9.0	-9.0	-8.9	-8.9	-8.9	-8.9	-9.0	-9.1	-9.1	-9.1	-9.2	-9.2	-9.2	-9.1	-9.0	-8.9	-8.8	-8.7	-8.7	-8.7
-7.5	-7.4	-7.4	-7.4	-7.5	-7.6	-7.7	-8.0	-8.2	-8.2	-8.2	-8.2	-8.1	-7.9	-7.9	-7.9	-7.9	-7.7	-7.5	-7.5	-7.4	-7.3	-7.4	-7.5	-7.6	-7.6	-7.6	-7.6	-7.6	-7.6	-7.6	-7.6	-7.6	-7.5	-7.5	-7.5
-6.3	-6.2	-6.3	-6.3	-6.3	-6.2	-6.1	-6.2	-6.3	-6.4	-6.5	-6.5	-6.5	-6.3	-6.2	-6.1	-6.2	-6.3	-6.3	-6.2	-6.2	-6.0	-6.2	-6.4	-6.3	-6.5	-6.4	-6.2	-6.3	-6.3	-6.3	-6.4	-6.4	-6.2	-6.1	-6.2
-4.7	-4.6	-4.6	-4.7	-4.8	-4.9	-4.9	-4.8	-4.9	-4.8	-4.9	-5.0	-4.8	-4.6	-4.4	-4.4	-4.5	-4.7	-4.8	-4.8	-4.9	-5.2	-5.4	-5.6	-5.5	-5.5	-5.5	-5.6	-5.4	-5.5	-5.5	-5.4	-5.5	-5.2	-5.0	-4.8
-3.2	-3.2	-3.2	-3.5	-3.9	-4.1	-4.2	-3.8	-4.0	-3.9	-3.9	-3.7	-3.4	-3.1	-3.1	-3.3	-3.6	-3.6	-3.5	-4.0	-4.6	-5.3	-5.5	-5.6	-5.8	-5.7	-5.6	-5.6	-5.3	-5.1	-4.9	-4.7	-4.6	-4.2	-3.8	-3.4
-2.4	-2.5	-2.6	-2.9	-3.3	-3.4	-3.5	-3.3	-3.4	-3.1	-2.9	-2.6	-2.4	-2.3	-2.6	-2.7	-2.9	-3.1	-3.1	-3.6	-4.0	-4.3	-4.4	-4.7	-4.8	-4.8	-4.8	-4.6	-4.4	-4.3	-4.1	-3.8	-3.5	-3.1	-2.8	-2.5
-2.4	-2.4	-2.5	-2.6	-2.7	-2.8	-2.7	-2.6	-2.8	-2.5	-2.3	-2.2	-2.2	-2.1	-2.4	-2.3	-2.3	-2.4	-2.4	-2.5	-2.6	-2.7	-3.0	-3.0	-3.0	-3.1	-3.3	-3.1	-3.1	-3.1	-3.0	-2.9	-2.8	-2.6	-2.4	-2.4
-2.4	-2.5	-2.5	-2.4	-2.4	-2.4	-2.2	-2.3	-2.1	-2.1	-1.9	-1.9	-1.9	-1.8	-2.0	-1.9	-1.9	-1.9	-1.8	-1.8	-1.9	-2.0	-2.0	-1.9	-2.0	-2.0	-2.2	-2.2	-2.3	-2.3	-2.3	-2.3	-2.5	-2.4	-2.4	-2.4
-2.4	-2.5	-2.6	-2.5	-2.5	-2.5	-2.3	-2.4	-2.1	-2.2	-1.9	-1.9	-2.0	-2.0	-2.1	-2.0	-2.1	-2.0	-2.0	-1.9	-2.0	-2.0	-2.0	-1.8	-2.0	-1.8	-2.1	-2.2	-2.4	-2.4	-2.4	-2.3	-2.3	-2.4	-2.4	-2.4
-2.2	-2.2	-2.2	-2.2	-2.1	-2.1	-1.9	-2.1	-2.0	-2.1	-2.0	-1.9	-2.0	-2.0	-1.9	-2.0	-2.1	-2.1	-2.2	-2.1	-2.2	-2.2	-2.2	-2.2	-2.4	-2.4	-2.6	-2.6	-2.8	-2.8	-2.7	-2.7	-2.5	-2.6	-2.5	-2.4
-1.5	-1.5	-1.5	-1.3	-1.1	-1.1	-.9	-1.1	-.9	-1.0	-1.1	-1.2	-1.3	-1.2	-1.1	-1.3	-1.4	-1.6	-1.6	-1.6	-1.6	-1.6	-1.7	-1.9	-2.1	-2.3	-2.3	-2.5	-2.5	-2.4	-2.2	-2.1	-1.9	-2.1	-2.1	-1.7
-.6	-.6	-.6	-.4	-.2	.0	.0	.1	.3	.4	.4	.4	.2	.2	.3	-.2	-.3	-.4	-.4	-.6	-.6	-.6	-.7	-.8	-1.0	-1.4	-1.2	-1.3	-1.3	-1.1	-1.2	-1.1	-1.0	-1.1	-1.1	-.8
1.0	1.2	1.1	1.2	1.6	1.9	1.7	1.9	2.1	2.5	2.9	3.0	2.9	2.8	2.7	2.3	2.1	1.9	1.8	1.7	1.5	1.3	1.1	.9	.6	.2	.1	.1	.1	.2	.2	.3	.4	.5	.6	.8
4.9	5.0	5.2	5.3	5.7	6.0	6.1	6.3	6.4	6.7	7.0	7.3	7.6	7.9	8.1	8.2	8.0	7.7	7.4	7.1	6.7	6.5	6.3	6.1	5.7	5.4	5.1	5.0	4.7	4.6	4.4	4.3	4.2	4.2	4.4	4.6
11.0	11.0	11.2	11.2	11.2	11.4	11.5	11.6	11.5	11.7	12.0	12.4	13.2	13.6	13.9	14.3	14.5	14.4	14.2	13.9	13.6	13.5	13.4	13.3	13.0	12.7	12.6	12.4	12.2	11.9	11.8	11.6	11.2	11.0	11.0	11.0
15.5	15.3	15.3	15.3	15.3	15.3	15.2	15.3	15.3	15.4	15.7	16.1	16.4	16.7	17.0	17.3	17.6	18.1	18.3	18.5	18.4	18.4	18.6	18.8	18.1	18.1	18.6	18.5	18.7	18.8	18.7	18.3	17.4	16.8	16.2	15.8
17.8	17.8	17.8	17.7	17.7	17.7	17.7	18.1	18.1	18.1	18.2	18.6	18.9	19.1	19.0	19.0	19.3	19.5	19.7	20.0	20.3	20.8	21.4	21.8	21.9	21.8	21.6	21.3	20.8	20.6	20.4	19.8	19.3	18.7	18.3	18.0

Figure 33. ATOVS SD O-B brightness temperature differences (deg C). JULY 2005
Channel: HIRS4 (400 hPa)
NOAA15, using all observations



1.0	1.1	1.0	1.0	1.0	1.0	1.0	.9	.9	.8	.8	.8	.8	.8	.8	.9	.9	1.0	1.1	1.1	1.2	1.2	1.2	1.2	1.2	1.2	1.1	1.0	.9	.8	.8	.8	.9	.9	1.0	1.0
1.3	1.3	1.2	1.2	1.0	.9	.8	.8	.8	.7	.7	.7	.7	.7	.9	.9	.9	.9	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	.9	.8	.8	.8	.8	.8	.9	1.0	1.2	1.3
.9	.8	.8	.7	.7	.7	.7	.9	.9	.9	.8	.8	.8	.8	1.0	1.1	1.0	.8	.8	.9	.8	.8	.8	.9	1.0	1.0	.9	.9	.9	.9	.9	.8	.8	.9	.9	1.0
1.1	1.0	1.0	.9	.8	.9	1.0	1.0	1.0	1.1	1.1	1.1	1.1	1.1	1.2	1.2	1.3	1.1	1.0	1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.1	1.0	1.0	.9	.9	1.0	1.0
1.4	1.4	1.3	1.3	1.3	1.3	1.4	1.4	1.4	1.3	1.3	1.3	1.4	1.4	1.4	1.3	1.3	1.2	1.2	1.2	1.1	1.2	1.3	1.3	1.3	1.3	1.3	1.3	1.4	1.3	1.3	1.3	1.3	1.4	1.5	1.4
1.5	1.5	1.5	1.5	1.6	1.7	1.7	1.7	1.6	1.6	1.7	1.6	1.6	1.6	1.4	1.5	1.5	1.6	1.6	1.6	1.7	1.8	1.9	1.9	1.9	1.8	1.9	1.9	1.8	1.7	1.7	1.8	1.7	1.7	1.6	1.6
1.7	1.7	1.7	1.8	1.8	1.9	1.9	1.9	1.8	1.9	1.8	1.8	1.7	1.7	1.7	1.8	1.8	1.9	1.9	1.9	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	1.9	1.8	1.7	1.7
2.0	1.9	1.9	2.0	2.0	2.0	2.0	2.0	1.9	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9
2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	2.0	1.9	2.0	2.0	1.9	1.9	2.0	1.9	1.9	2.0	2.0	1.9	2.0	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	2.0	2.0	1.9	2.0	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
2.0	2.0	2.0	1.9	2.0	2.0	1.9	1.9	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	2.0	2.0	2.0	2.0	2.0	2.0	1.9	2.0	2.0	2.0	2.0
1.6	1.8	1.8	1.8	1.8	1.9	1.7	1.7	1.8	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.8	1.8	1.7	1.8	1.8	1.8	1.9	1.9	1.8	1.8	1.8	1.8	1.7	1.7	1.8	1.8	1.8
1.6	1.6	1.5	1.6	1.7	1.6	1.5	1.6	1.7	1.6	1.5	1.6	1.6	1.5	1.5	1.5	1.5	1.4	1.5	1.5	1.6	1.6	1.7	1.6	1.8	1.8	1.9	1.8	1.7	1.6	1.6	1.5	1.4	1.6	1.6	1.7
2.1	2.0	1.9	1.9	1.8	1.8	1.9	2.1	2.3	2.3	2.3	2.2	2.2	2.1	2.1	2.1	1.9	1.8	1.9	2.0	2.1	2.2	2.2	2.2	2.1	2.2	2.2	2.3	2.4	2.4	2.3	2.2	2.1	2.2	2.1	2.2
2.7	2.6	2.6	2.5	2.5	2.5	2.7	2.9	3.0	3.2	3.4	3.3	3.4	3.1	3.0	3.0	2.9	2.8	3.0	3.1	3.1	3.1	3.2	3.1	3.1	3.0	3.0	3.0	3.0	3.1	3.0	2.9	2.9	3.0	3.0	2.9
3.1	2.8	2.8	2.8	2.8	2.9	2.9	3.1	3.2	3.4	3.4	3.4	3.2	3.0	2.9	2.8	2.7	2.7	2.7	2.8	2.9	3.0	3.1	3.1	3.0	2.9	3.0	3.1	3.0	3.0	3.0	3.1	3.1	3.2	3.3	3.2
2.0	2.0	2.0	2.1	2.2	2.3	2.4	2.5	2.5	2.5	2.4	2.3	2.4	2.3	2.2	2.1	1.9	1.9	2.0	2.0	2.2	2.2	2.1	1.8	1.9	1.9	1.9	1.7	1.7	1.8	1.8	1.7	1.9	1.9	2.0	2.0
2.1	2.2	2.3	2.3	2.3	2.3	2.2	2.3	2.3	2.2	2.3	2.3	2.2	2.1	2.0	2.0	1.8	1.7	1.6	1.5	1.3	1.2	1.2	1.1	1.0	1.1	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	2.0	2.0

Figure 34. ATOVS MEAN O-B brightness temperature differences (deg C). JULY 2005
Channel: AMSUA-5 (700 hPa)
NOAA15, using all observations



.4	.4	.4	.4	.4	.4	.3	.3	.4	.4	.4	.4	.1	-.3	-.2	.4	.2	.3	.2	.2	.2	.3	.2	.2	.2	.2	.2	.1	.3	.3	.3	.3	.3	.3	.4	.4
.4	.4	.4	.4	.5	.5	.4	.3	.3	.2	.2	.1	-.9	-3.1	-3.1	-.3	.4	.5	.5	.5	.4	.5	.5	.4	.4	.4	.2	.2	.1	.2	.4	.5	.2	.3	.4	.4
.5	.3	.2	.3	.3	.2	.1	.0	.1	.2	.3	.3	.4	-.9	-.2	.4	.4	.5	.4	.2	.2	.2	.3	.4	.2	.1	.2	.3	.3	.1	.0	.0	.0	.0	.1	.3
.5	.4	.3	.5	.4	.1	-.1	-.1	.1	.3	.2	.0	.4	.5	.4	.5	.4	.2	.2	.1	.2	.2	.1	.2	.2	.2	.2	.0	-.1	.0	.0	.2	.3	.3	.3	.4
.4	.4	.4	.5	.5	.3	.2	.1	.0	.0	.0	.1	.2	.4	.4	.4	.5	.4	.3	.1	.0	.1	.2	.3	.4	.0	-.3	.1	.0	.0	-.1	.1	.2	.3	.3	.3
.3	.3	.4	.4	.4	.3	.1	.0	-.1	-.3	.0	.1	.2	.3	.3	.4	.4	.4	.4	.3	.2	.3	.4	.5	.2	-.9	-1.0	-.8	-.3	-.4	-.1	-.1	.1	.2	.3	.3
.2	.3	.4	.4	.4	.4	.2	-.2	-.1	-.2	.0	.1	.2	.3	.3	.4	.3	.5	.5	.4	.4	.2	.4	.2	.1	-.4	-.6	-.3	-.2	-.1	.0	.1	.0	.0	.0	.1
.2	.3	.3	.3	.4	.3	.2	.0	-.3	-.2	-.1	.1	.1	.2	.3	.2	-.2	-.3	-.1	.1	.3	.2	.5	.5	.3	-.2	-.1	-.5	-.5	-.1	-.1	-.1	-.1	.0	.0	.1
.0	.1	.2	.2	.2	.2	.2	.1	.1	.0	-.3	-.2	-.1	.1	.1	.2	.2	.1	.1	-.2	-.2	.1	.3	.4	.2	.0	.1	-.2	-.2	-.3	-.2	-.3	-.3	-.1	-.2	-.1
.1	.2	.3	.3	.4	.3	.3	.3	.3	.3	-.2	.0	-.1	.1	.3	.4	.3	.3	.3	.0	-.1	.4	.3	.2	.2	.0	-.2	-.2	-.1	.0	.0	-.2	-.2	-.2	-.1	-.1
.2	.2	.3	.3	.4	.4	.3	.3	.4	.4	.2	.1	.2	.4	.3	.3	.3	.3	.4	.4	.3	.3	.3	.3	.4	.4	.4	.3	.3	.3	.4	.5	.3	.2	.2	.2
.4	.3	.3	.3	.4	.4	.4	.4	.4	.5	.5	.4	.2	.3	.4	.4	.3	.4	.4	.5	.5	.3	.4	.4	.5	.5	.4	.4	.4	.4	.6	.7	.5	.4	.4	.4
.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.3	.4	.3	.4	.5	.4	.5	.5	.5	.5	.5	.5	.5	.6	.6	.6	.5	.6	.5	.5	.5	.5	.5	.4	.5	.4
.6	.6	.6	.6	.7	.6	.6	.5	.5	.5	.3	.4	.5	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.7	.6	.7	.6	.6	.6	.6	.6	.6	.5	.5	.5	.4
.6	.6	.6	.6	.5	.6	.5	.5	.5	.5	.4	.4	.5	.4	.4	.4	.4	.3	.5	.5	.5	.6	.6	.5	.5	.5	.5	.5	.5	.6	.6	.6	.6	.6	.6	.6
.0	.1	.2	.2	.4	.4	.3	.3	.2	.2	.2	.2	-.1	.0	-.1	-.1	.0	.2	.2	.2	.3	.2	.0	-.1	.0	.2	.0	.0	-.1	.1	.1	.0	-.1	.1	.0	.0
-.1	-.1	-.2	-.3	-.6	-.7	-.6	-.4	-.3	.0	.0	-.1	-.1	.1	.0	-.1	-.7	-1.5	-2.8	-3.1	-2.5	-1.9	-2.2	-2.2	-1.6	-1.8	-2.3	-1.6	-2.2	-3.2	-3.1	-2.2	-1.8	-1.6	-.4	-.2
-1.0	-1.1	-.8	-.2	-.5	-1.1	-1.3	-1.6	-.9	.0	-.2	-.7	-.6	-.6	-1.1	-1.4	-2.0	-2.6	-3.1	-3.7	-3.9	-4.2	-4.5	-4.7	-4.9	-5.3	-5.8	-5.4	-5.1	-4.3	-4.0	-3.7	-3.2	-1.5	-1.2	-1.2

Figure 35. ATOVS SD O-B brightness temperature differences (deg C). JULY 2005
Channel: AMSUA-5 (700 hPa)
NOAA15, using all observations

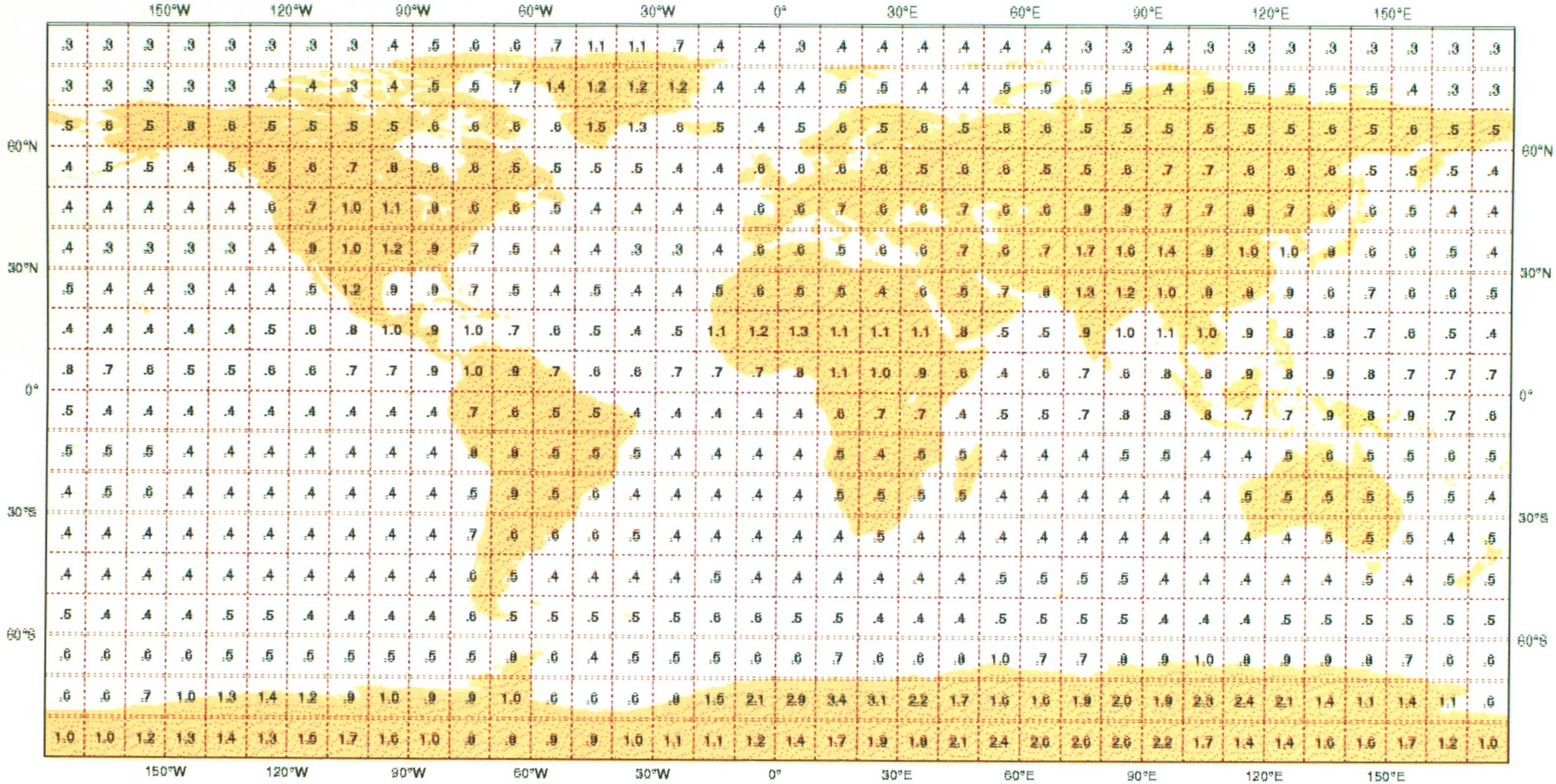

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
.3 .3 .3 .3 .3 .3 .3 .3 .4 .5 .6 .6 .7 1.1 1.1 .7 .4 .4 .3 .4 .4 .4 .4 .4 .4 .3 .3 .4 .3 .3 .3 .3 .3 .3 .3 .3
.3 .3 .3 .3 .3 .4 .4 .3 .4 .5 .5 .7 1.4 1.2 1.2 1.2 .4 .4 .4 .5 .5 .4 .4 .5 .5 .5 .5 .5 .4 .5 .5 .5 .5 .5 .4 .3 .3
.5 .6 .5 .8 .6 .5 .5 .5 .5 .6 .6 .6 .6 1.5 1.3 .6 .5 .4 .5 .6 .5 .6 .5 .6 .6 .5 .5 .5 .5 .5 .5 .6 .5 .6 .5 .5
.4 .5 .5 .4 .5 .5 .6 .7 .8 .6 .6 .5 .5 .5 .5 .4 .4 .6 .6 .6 .6 .5 .6 .6 .5 .5 .6 .7 .7 .6 .6 .6 .5 .5 .5 .4
.4 .4 .4 .4 .4 .6 .7 1.0 1.1 .8 .6 .6 .5 .4 .4 .4 .4 .6 .6 .7 .6 .6 .7 .6 .6 .9 .9 .7 .7 .8 .7 .6 .6 .5 .4 .4
.4 .3 .3 .3 .3 .4 .9 1.0 1.2 .9 .7 .5 .4 .4 .3 .3 .4 .6 .6 .5 .6 .6 .7 .6 .7 1.7 1.6 1.4 .9 1.0 1.0 .8 .6 .6 .5 .4
.5 .4 .4 .3 .4 .4 .5 1.2 .9 .9 .7 .5 .4 .5 .4 .4 .5 .6 .5 .5 .4 .6 .5 .7 .8 1.3 1.2 1.0 .8 .8 .9 .6 .7 .6 .6 .5
.4 .4 .4 .4 .4 .5 .6 .8 1.0 .9 1.0 .7 .6 .5 .4 .5 1.1 1.2 1.3 1.1 1.1 1.1 .8 .5 .5 .9 1.0 1.1 1.0 .9 .8 .8 .7 .6 .5 .4
.8 .7 .6 .5 .5 .6 .6 .7 .7 .9 1.0 .9 .7 .6 .6 .7 .7 .7 .8 1.1 1.0 .9 .6 .4 .6 .7 .6 .8 .8 .9 .8 .9 .8 .7 .7 .7
.5 .4 .4 .4 .4 .4 .4 .4 .4 .4 .7 .6 .5 .5 .4 .4 .4 .4 .4 .6 .7 .7 .4 .5 .5 .7 .8 .8 .8 .7 .7 .9 .8 .9 .7 .6
.5 .5 .5 .4 .4 .4 .4 .4 .4 .4 .8 .8 .5 .5 .4 .4 .4 .4 .5 .4 .5 .5 .4 .4 .4 .5 .5 .4 .4 .5 .6 .5 .5 .6 .5
.4 .5 .6 .4 .4 .4 .4 .4 .4 .4 .5 .9 .5 .6 .4 .4 .4 .4 .5 .5 .5 .5 .4 .4 .4 .4 .4 .4 .5 .5 .5 .5 .5 .5 .4
.4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .7 .6 .6 .5 .4 .4 .4 .4 .4 .5 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .5 .5 .5 .4 .5
.4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .6 .5 .4 .4 .4 .5 .4 .4 .4 .4 .4 .4 .5 .5 .5 .5 .4 .4 .4 .4 .4 .5 .4 .5 .5
.5 .4 .4 .4 .5 .5 .4 .4 .4 .4 .6 .5 .5 .5 .5 .6 .6 .5 .5 .4 .4 .4 .5 .5 .5 .5 .4 .4 .4 .5 .5 .5 .5 .5 .5
.6 .6 .6 .6 .5 .5 .5 .5 .5 .5 .5 .8 .6 .4 .5 .5 .5 .6 .6 .7 .6 .6 .8 1.0 .7 .7 .8 .9 1.0 .8 .9 .9 .8 .7 .6 .6
.6 .6 .7 1.0 1.3 1.4 1.2 .9 1.0 .9 .9 1.0 .6 .6 .6 .8 1.5 2.1 2.9 3.4 3.1 2.2 1.7 1.6 1.6 1.9 2.0 1.9 2.3 2.4 2.1 1.4 1.1 1.4 1.1 .6
1.0 1.0 1.2 1.3 1.4 1.3 1.5 1.7 1.6 1.0 .8 .8 .9 .9 1.0 1.1 1.1 1.2 1.4 1.7 1.9 1.8 2.1 2.4 2.6 2.6 2.6 2.2 1.7 1.4 1.4 1.6 1.6 1.7 1.2 1.0

Figure 36. ATOVS MEAN O-B brightness temperature differences (deg C). JULY 2005
Channel: AMSUA-7 (300 hPa)
NOAA15, using all observations

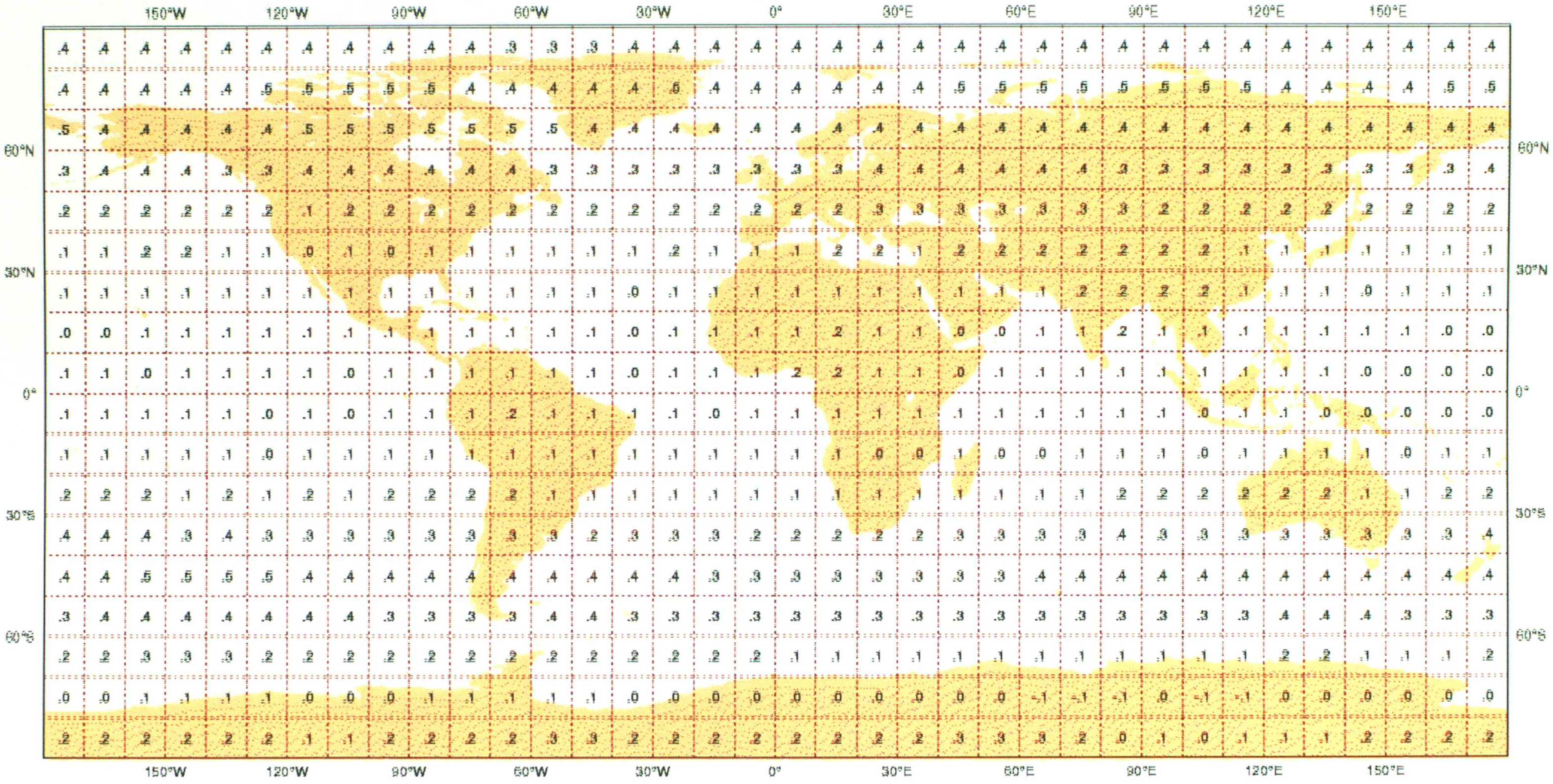

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S

Figure 37. ATOVS SD O-B brightness temperature differences (deg C). JULY 2005
Channel: AMSUA-7 (300 hPa)
NOAA15, using all observations

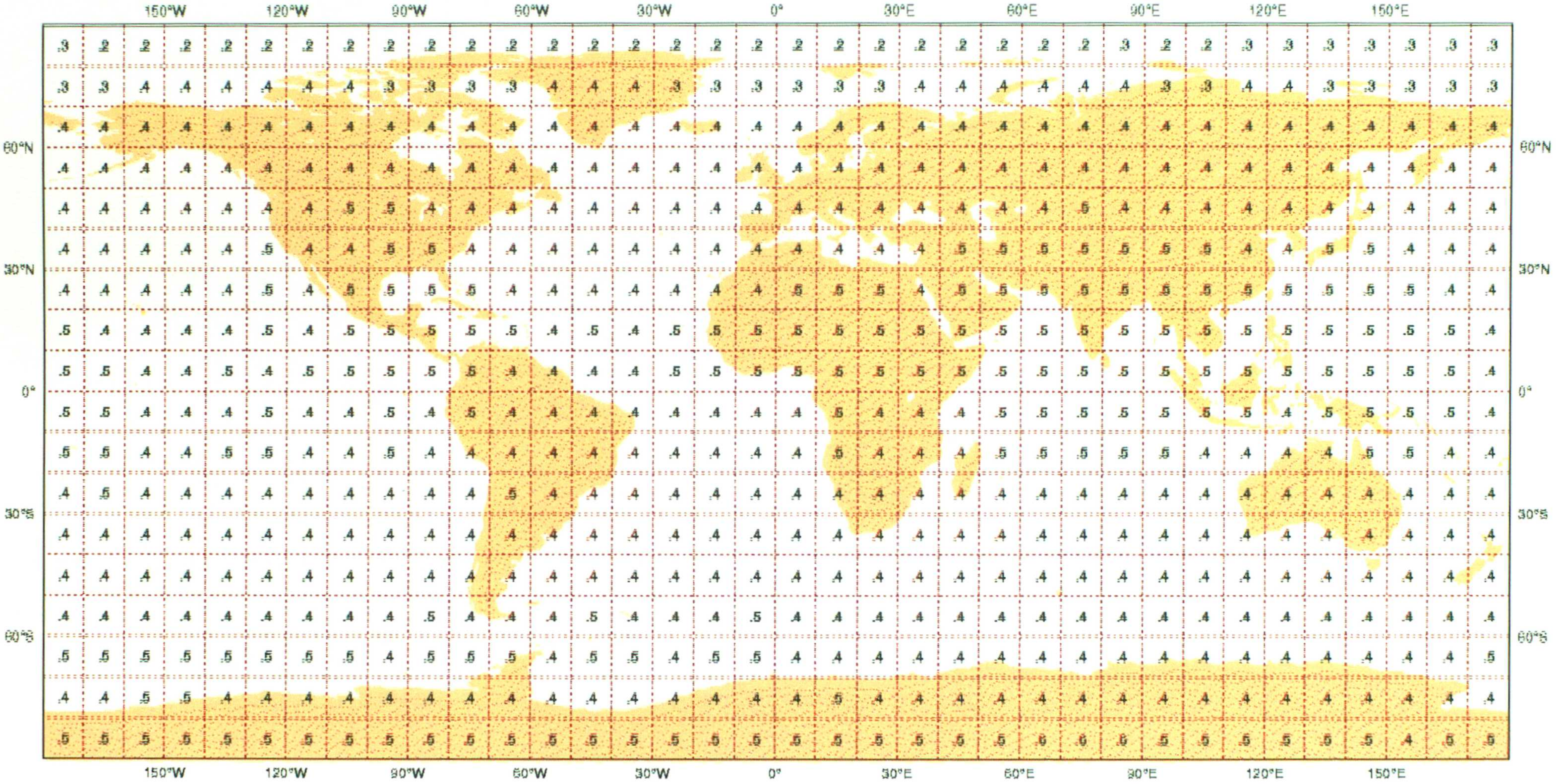
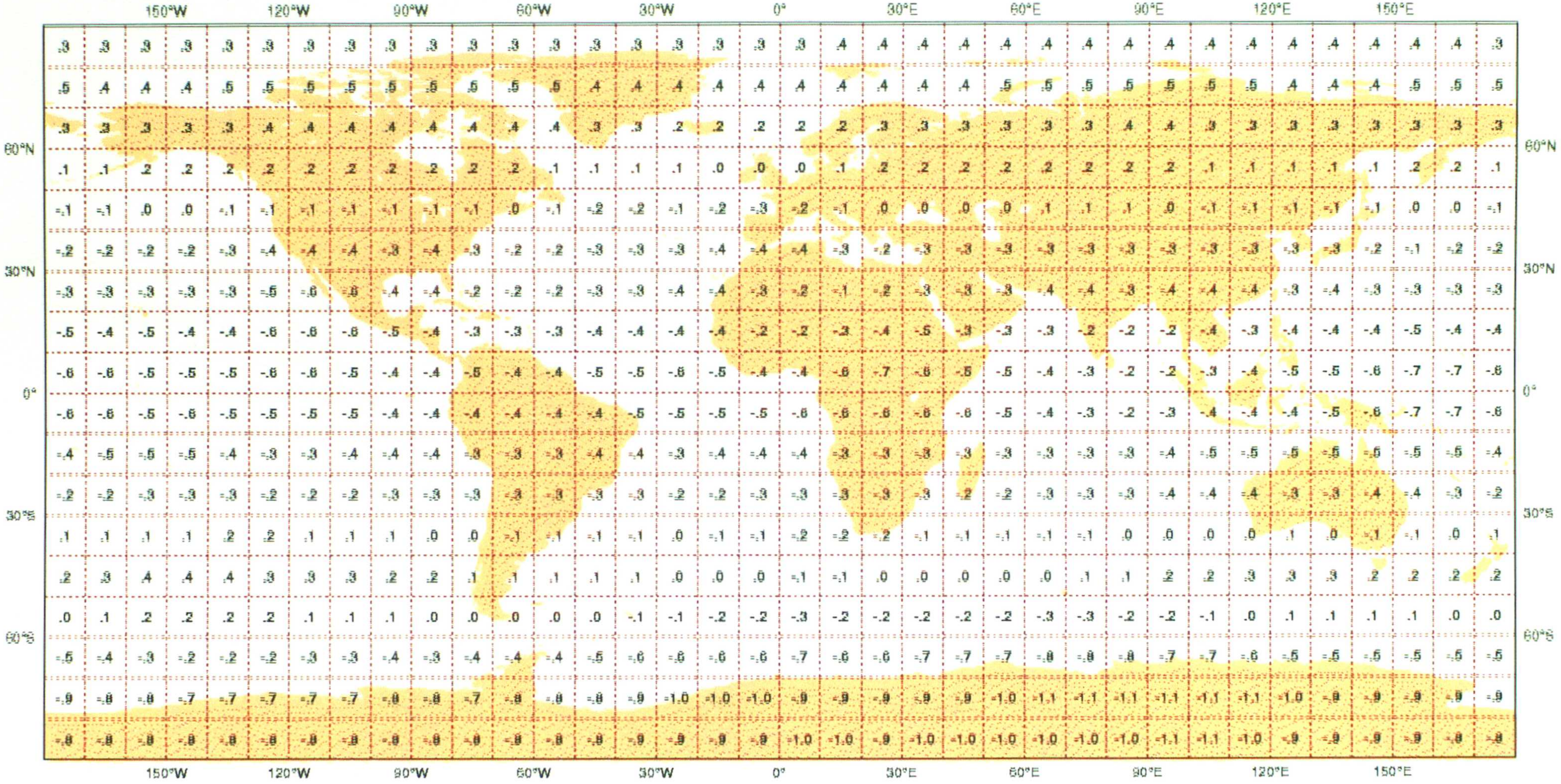

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S

Figure 38. ATOVS MEAN O-B brightness temperature differences (deg C). JULY 2005
Channel: AMSUA-9 (100 hPa)
NOAA15, using all observations



.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.3
.5	.4	.4	.4	.5	.5	.5	.5	.5	.5	.5	.5	.5	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.5	.5	.5	.5	.5	.5	.5	.4	.4	.4	.5	.5	.5
.3	.3	.3	.3	.3	.4	.4	.4	.4	.4	.4	.4	.4	.3	.3	.2	.2	.2	.2	.2	.3	.3	.3	.3	.3	.3	.4	.4	.3	.3	.3	.3	.3	.3	.3	.3
.1	.1	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.1	.1	.1	.1	.0	.0	.0	.1	.2	.2	.2	.2	.2	.2	.2	.2	.1	.1	.1	.1	.1	.2	.2	.1
-.1	-.1	.0	.0	-.1	-.1	-.1	-.1	-.1	-.1	-.1	.0	-.1	-.2	-.2	-.1	-.2	-.3	-.2	-.1	.0	.0	.0	.0	.1	.1	.1	.0	-.1	-.1	-.1	-.1	-.1	.0	.0	-.1
-.2	-.2	-.2	-.2	-.3	-.4	-.4	-.4	-.3	-.4	-.3	-.2	-.2	-.3	-.3	-.3	-.4	-.4	-.4	-.3	-.2	-.3	-.3	-.3	-.3	-.3	-.3	-.3	-.3	-.3	-.3	-.3	-.2	-.1	-.2	-.2
-.3	-.3	-.3	-.3	-.3	-.5	-.6	-.6	-.4	-.4	-.2	-.2	-.2	-.3	-.3	-.4	-.4	-.3	-.2	-.1	-.2	-.3	-.3	-.3	-.4	-.4	-.3	-.4	-.4	-.4	-.3	-.4	-.3	-.3	-.3	-.3
-.5	-.4	-.5	-.4	-.4	-.6	-.6	-.6	-.5	-.4	-.3	-.3	-.3	-.4	-.4	-.4	-.4	-.2	-.2	-.3	-.4	-.5	-.3	-.3	-.3	-.2	-.2	-.2	-.4	-.3	-.4	-.4	-.4	-.5	-.4	-.4
-.6	-.6	-.5	-.5	-.5	-.6	-.6	-.5	-.4	-.4	-.5	-.4	-.4	-.5	-.5	-.6	-.5	-.4	-.4	-.6	-.7	-.6	-.5	-.5	-.4	-.3	-.2	-.2	-.3	-.4	-.5	-.5	-.6	-.7	-.7	-.6
-.6	-.6	-.5	-.6	-.5	-.5	-.5	-.5	-.4	-.4	-.4	-.4	-.4	-.4	-.5	-.5	-.5	-.5	-.6	-.6	-.6	-.6	-.6	-.5	-.4	-.3	-.2	-.3	-.4	-.4	-.4	-.5	-.6	-.7	-.7	-.6
-.4	-.5	-.5	-.5	-.4	-.3	-.3	-.4	-.4	-.4	-.3	-.3	-.3	-.4	-.4	-.3	-.4	-.4	-.4	-.3	-.3	-.3	-.3	-.3	-.3	-.3	-.3	-.4	-.5	-.5	-.5	-.5	-.6	-.5	-.5	-.4
-.2	-.2	-.3	-.3	-.3	-.2	-.2	-.2	-.3	-.3	-.3	-.3	-.3	-.3	-.3	-.2	-.2	-.3	-.3	-.3	-.3	-.3	-.2	-.2	-.3	-.3	-.3	-.4	-.4	-.4	-.3	-.3	-.4	-.4	-.3	-.2
.1	.1	.1	.1	.2	.2	.1	.1	.1	.0	.0	-.1	-.1	-.1	-.1	.0	-.1	-.1	-.2	-.2	-.2	-.1	-.1	-.1	-.1	-.1	.0	.0	.0	.0	.1	.0	-.1	-.1	.0	.1
.2	.3	.4	.4	.4	.3	.3	.3	.2	.2	.1	.1	.1	.1	.1	.0	.0	.0	-.1	-.1	.0	.0	.0	.0	.0	.1	.1	.2	.2	.3	.3	.3	.2	.2	.2	.2
.0	.1	.2	.2	.2	.2	.1	.1	.1	.0	.0	.0	.0	.0	-.1	-.1	-.2	-.2	-.3	-.2	-.2	-.2	-.2	-.2	-.3	-.3	-.2	-.2	-.1	.0	.1	.1	.1	.1	.0	.0
-.5	-.4	-.3	-.2	-.2	-.2	-.3	-.3	-.4	-.3	-.4	-.4	-.4	-.5	-.6	-.6	-.6	-.6	-.7	-.6	-.6	-.7	-.7	-.7	-.8	-.8	-.8	-.7	-.7	-.6	-.5	-.5	-.5	-.5	-.5	-.5
-.9	-.8	-.8	-.7	-.7	-.7	-.7	-.7	-.8	-.8	-.7	-.8	-.8	-.8	-.9	-1.0	-1.0	-1.0	-.9	-.9	-.9	-.9	-.9	-1.0	-1.1	-1.1	-1.1	-1.1	-1.1	-1.1	-1.0	-.9	-.9	-.9	-.9	-.9
-.8	-.8	-.8	-.8	-.8	-.8	-.8	-.8	-.8	-.8	-.8	-.8	-.8	-.8	-.9	-.9	-.9	-.9	-1.0	-1.0	-.9	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.1	-1.1	-1.0	-.9	-.9	-.9	-.9	-.8	-.8

Figure 39. ATOVS SD O-B brightness temperature differences (deg C). JULY 2005
Channel: AMSUA-9 (100 hPa)
NOAA15, using all observations

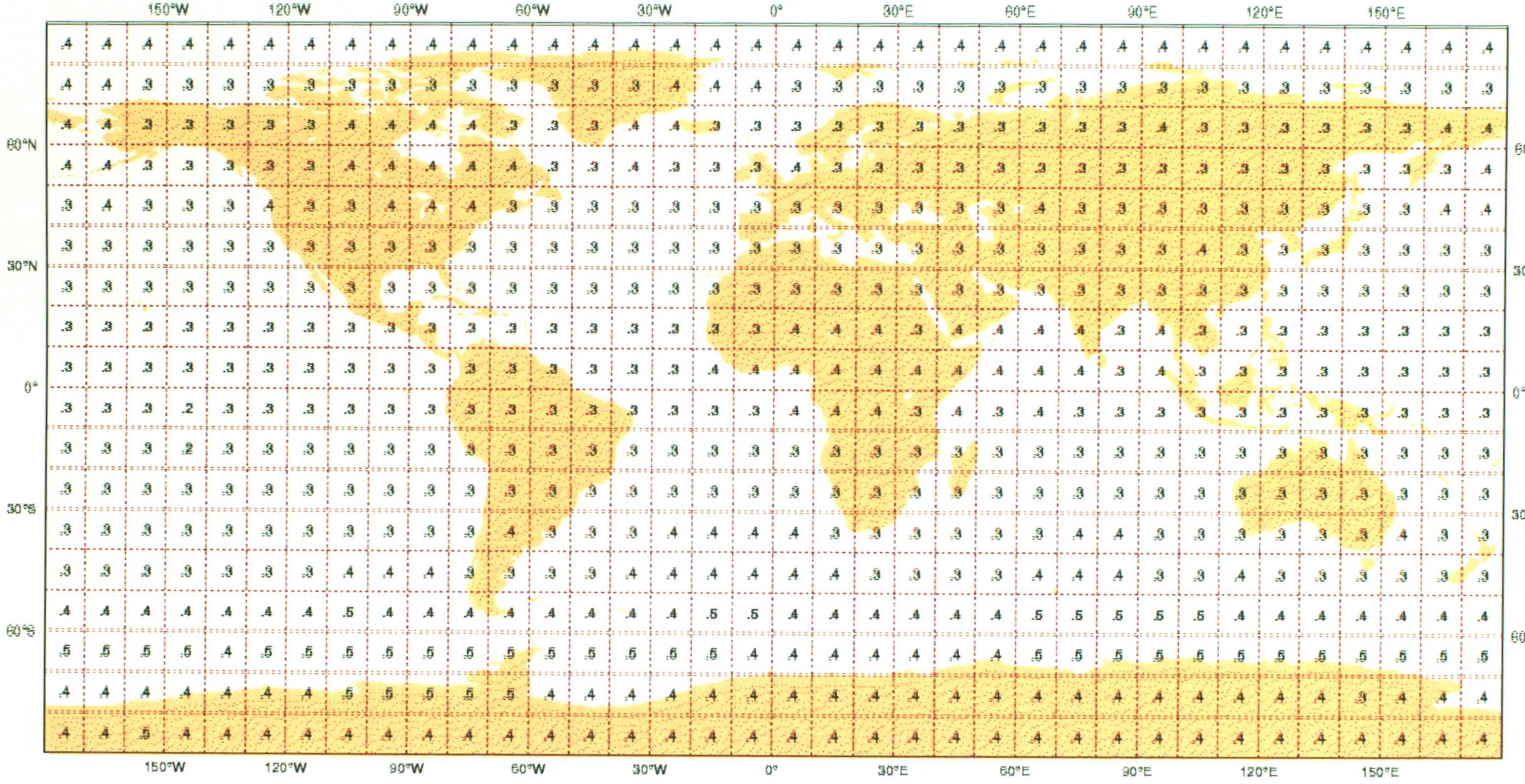
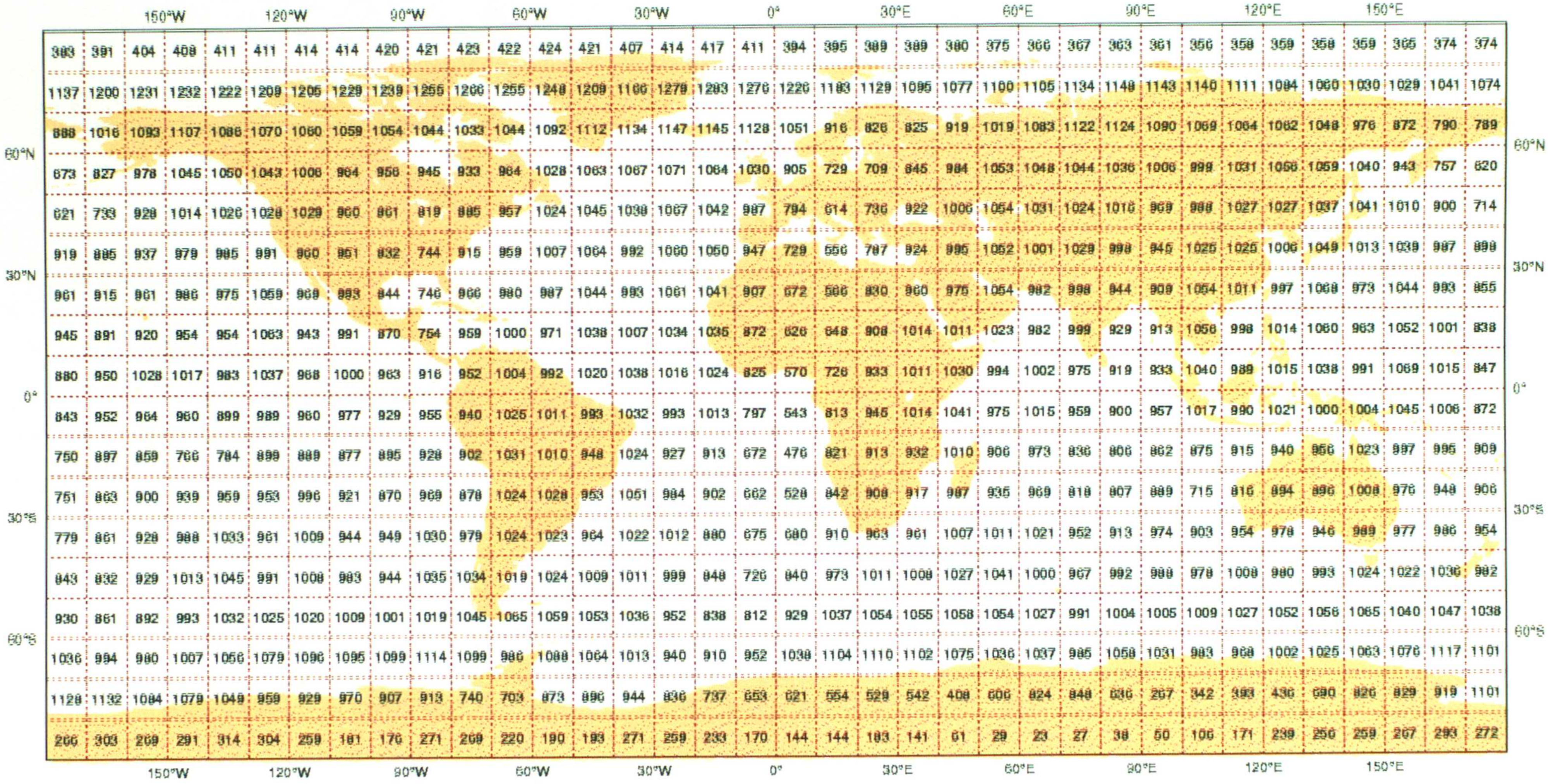
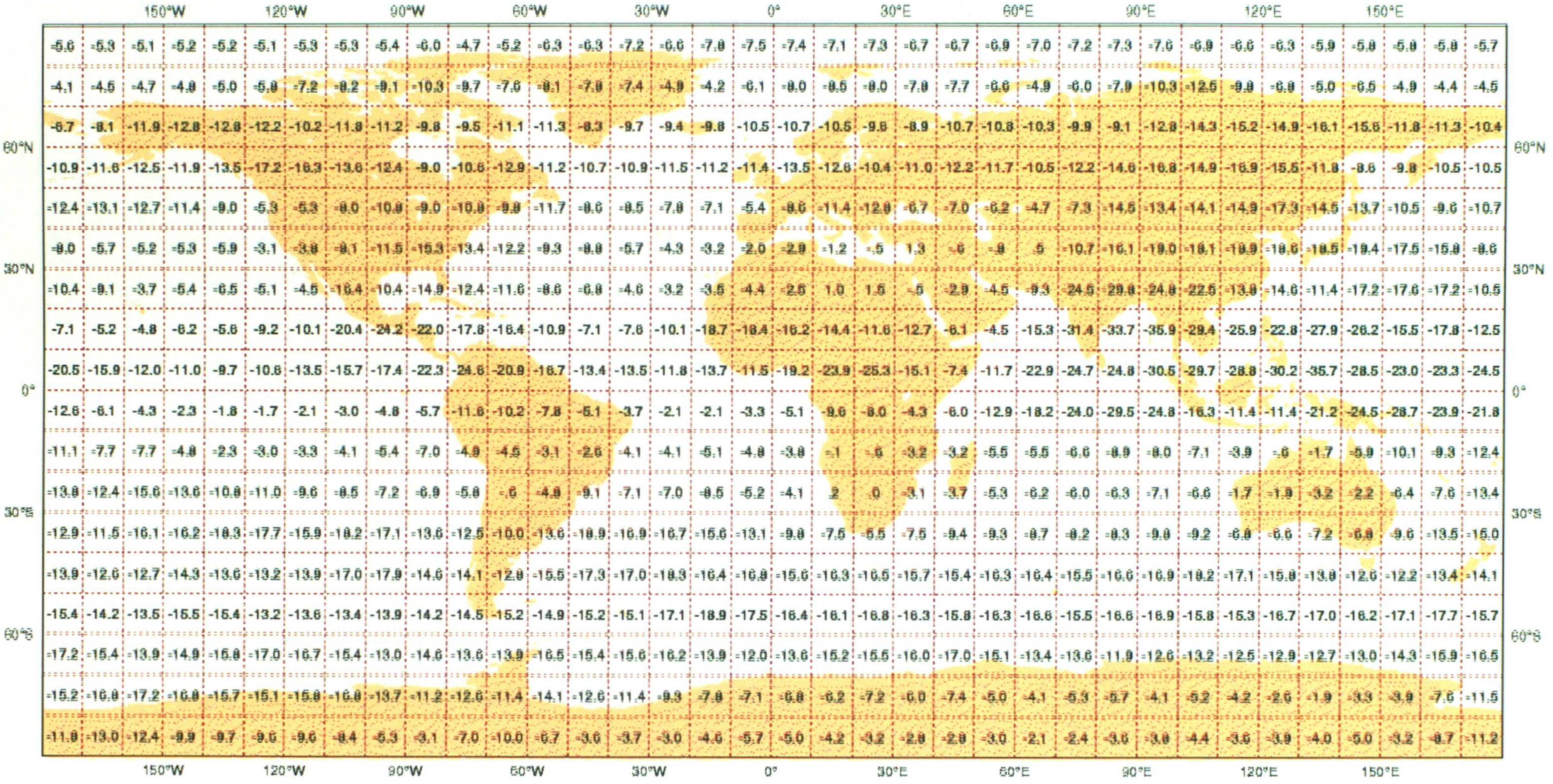

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S

Figure 40. ATOVS mean daily count. JULY 2005
NOAA16, using all observations
Global average number of observations in 24 hours = 575988



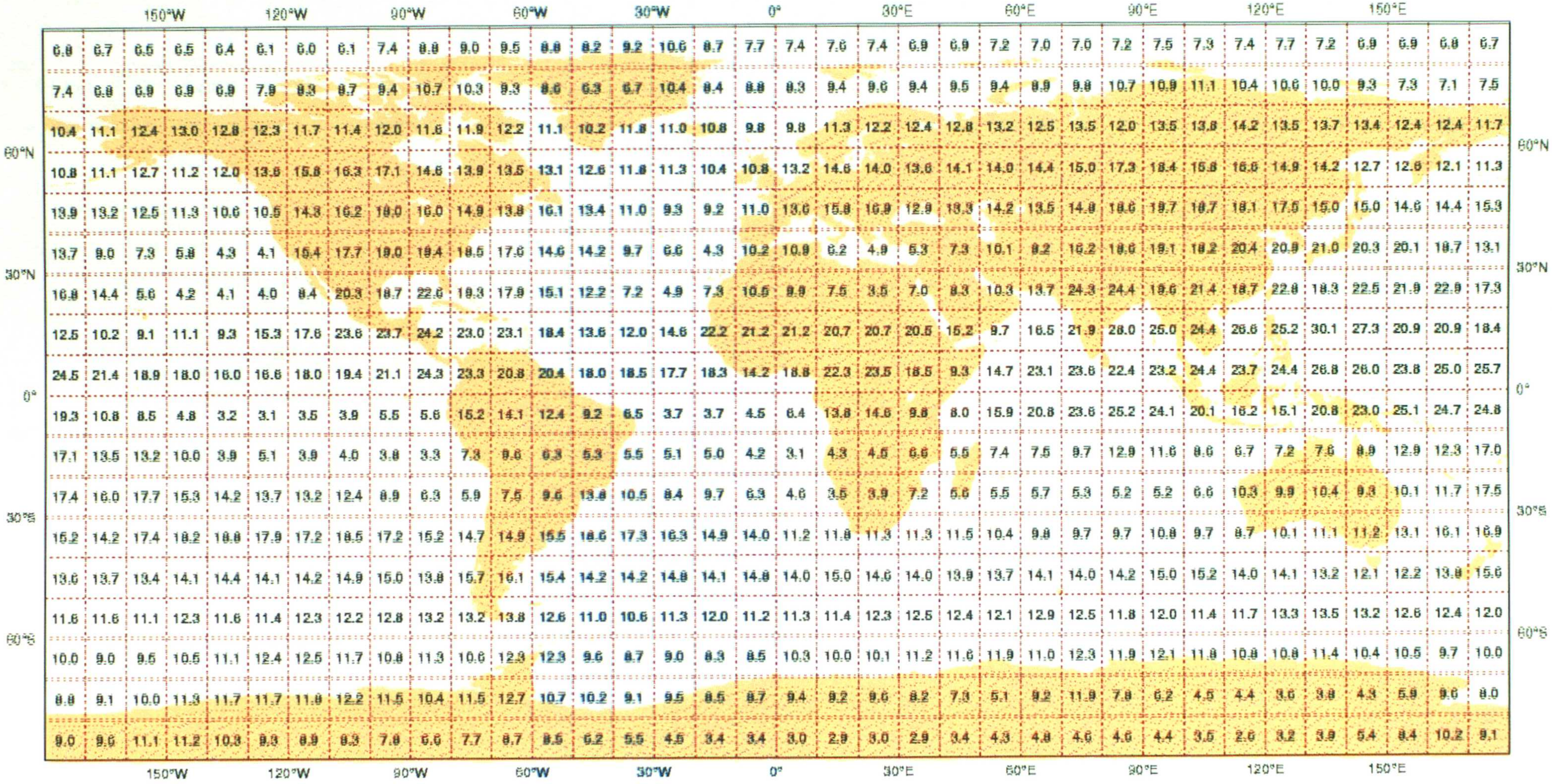
383	391	404	408	411	411	414	414	420	421	423	422	424	421	407	414	417	411	394	395	389	389	380	375	366	367	363	361	356	358	359	358	359	365	374	374
1137	1200	1231	1232	1222	1209	1205	1229	1239	1255	1266	1255	1248	1209	1166	1279	1283	1276	1226	1183	1129	1095	1077	1100	1105	1134	1148	1143	1140	1111	1094	1060	1030	1029	1041	1074
888	1016	1093	1107	1086	1070	1060	1059	1054	1044	1033	1044	1092	1112	1134	1147	1145	1128	1051	916	826	825	919	1019	1083	1122	1124	1090	1069	1064	1062	1048	976	872	790	789
673	827	978	1045	1050	1043	1006	964	956	945	933	964	1028	1063	1067	1071	1064	1030	905	729	709	845	984	1053	1048	1044	1036	1006	999	1031	1056	1059	1040	943	757	620
621	733	928	1014	1026	1028	1029	960	961	919	885	957	1024	1045	1038	1067	1042	987	794	614	736	922	1006	1054	1031	1024	1016	969	988	1027	1027	1037	1041	1010	900	714
919	885	937	979	985	991	960	951	832	744	915	959	1007	1064	992	1060	1050	947	729	556	787	924	995	1052	1001	1029	998	945	1025	1025	1006	1049	1013	1039	987	898
961	915	961	986	975	1059	969	893	844	746	966	980	987	1044	993	1061	1041	907	672	566	830	960	975	1054	982	998	944	909	1054	1011	997	1068	973	1044	993	855
945	891	920	954	954	1063	943	991	870	754	959	1000	971	1038	1007	1034	1035	872	626	648	908	1014	1011	1023	982	999	929	913	1056	998	1014	1060	963	1052	1001	838
880	950	1028	1017	983	1037	968	1000	963	916	952	1004	992	1020	1038	1016	1024	825	570	726	933	1011	1030	994	1002	975	919	933	1040	989	1015	1038	991	1069	1015	847
843	952	964	960	899	989	960	977	929	955	940	1025	1011	993	1032	993	1013	797	543	813	945	1014	1041	975	1015	959	900	957	1017	990	1021	1000	1004	1045	1006	872
750	897	859	766	784	899	889	877	895	928	902	1031	1010	948	1024	927	913	672	476	821	913	932	1010	906	973	836	806	862	875	915	940	956	1023	997	995	909
751	863	900	939	959	953	996	921	870	969	878	1024	1028	953	1051	984	902	662	528	842	908	917	987	935	969	818	807	889	715	816	894	896	1008	976	948	906
779	861	928	988	1033	961	1009	944	949	1030	979	1024	1023	964	1022	1012	880	675	680	910	963	961	1007	1011	1021	952	913	974	903	954	978	946	989	977	986	954
843	832	929	1013	1045	991	1008	983	944	1035	1034	1019	1024	1009	1011	999	848	726	840	973	1011	1008	1027	1041	1000	967	992	988	978	1008	980	993	1024	1022	1036	982
930	861	892	993	1032	1025	1020	1009	1001	1019	1045	1065	1059	1053	1036	952	838	812	929	1037	1054	1055	1058	1054	1027	991	1004	1005	1009	1027	1052	1056	1065	1040	1047	1038
1036	994	980	1007	1056	1079	1096	1095	1099	1114	1099	986	1088	1064	1013	940	910	952	1038	1104	1110	1102	1075	1036	1037	985	1058	1031	983	968	1002	1025	1063	1076	1117	1101
1128	1132	1084	1079	1049	959	929	970	907	913	740	703	873	896	944	836	737	653	621	554	529	542	408	606	824	848	636	267	342	393	436	690	826	829	919	1101
266	303	269	291	314	304	259	181	176	271	269	220	190	193	271	259	233	170	144	144	183	141	61	29	23	27	38	50	106	171	239	250	259	267	293	272

Figure 41. ATOVS MEAN O-B brightness temperature differences (deg C). JULY 2005
Channel: HIRS8 (Surface)
NOAA16, using all observations



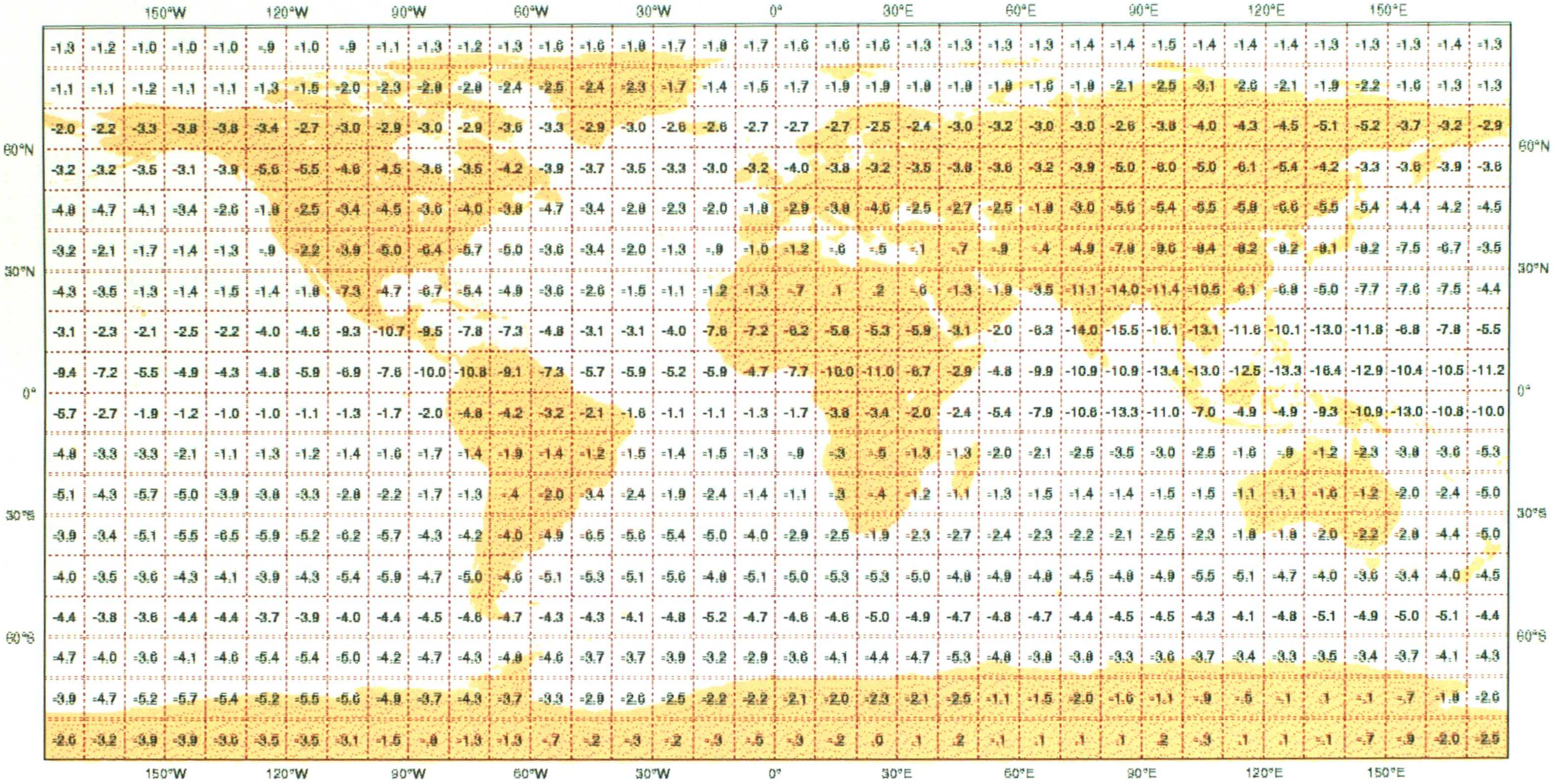
-5.6	-5.9	-5.1	-5.2	-5.2	-5.1	-5.3	-5.3	-5.4	-6.0	-4.7	-5.2	-6.3	-6.3	-7.2	-6.6	-7.8	-7.5	-7.4	-7.1	-7.3	-6.7	-6.7	-6.9	-7.0	-7.2	-7.3	-7.6	-6.9	-6.6	-6.3	-5.9	-5.8	-5.8	-5.8	-5.7
-4.1	-4.5	-4.7	-4.8	-5.0	-5.8	-7.2	-8.2	-9.1	-10.3	-8.7	-7.6	-8.1	-7.8	-7.4	-4.9	-4.2	-6.1	-8.0	-8.5	-8.0	-7.8	-7.7	-6.6	-4.9	-6.0	-7.9	-10.3	-12.5	-9.8	-6.8	-5.0	-6.5	-4.9	-4.4	-4.5
-6.7	-8.1	-11.9	-12.8	-12.8	-12.2	-10.2	-11.8	-11.2	-9.8	-9.5	-11.1	-11.3	-8.3	-9.7	-9.4	-9.8	-10.5	-10.7	-10.5	-9.6	-8.9	-10.7	-10.8	-10.3	-9.9	-9.1	-12.8	-14.3	-15.2	-14.9	-16.1	-15.6	-11.8	-11.3	-10.4
-10.9	-11.6	-12.5	-11.9	-13.5	-17.2	-16.3	-13.6	-12.4	-9.0	-10.6	-12.9	-11.2	-10.7	-10.9	-11.5	-11.2	-11.4	-13.5	-12.6	-10.4	-11.0	-12.2	-11.7	-10.5	-12.2	-14.6	-16.8	-14.9	-16.9	-15.5	-11.8	-8.6	-9.8	-10.5	-10.5
-12.4	-13.1	-12.7	-11.4	-9.0	-5.3	-5.3	-8.0	-10.8	-9.0	-10.8	-9.8	-11.7	-8.6	-8.5	-7.8	-7.1	-5.4	-8.6	-11.4	-12.8	-6.7	-7.0	-6.2	-4.7	-7.3	-14.5	-13.4	-14.1	-14.9	-17.3	-14.5	-13.7	-10.5	-9.6	-10.7
-8.0	-5.7	-5.2	-6.3	-5.9	-3.1	-3.8	-8.1	-11.5	-15.3	-13.4	-12.2	-9.3	-8.8	-5.7	-4.3	-3.2	-2.0	-2.8	-1.2	-.5	1.3	-.6	-.8	.5	-10.7	-16.1	-19.0	-18.1	-19.9	-18.6	-18.5	-19.4	-17.5	-15.8	-8.6
-10.4	-8.1	-3.7	-5.4	-6.5	-5.1	-4.5	-16.4	-10.4	-14.9	-12.4	-11.6	-8.6	-6.8	-4.6	-3.2	-3.5	-4.4	-2.5	1.0	1.5	-.5	-2.8	-4.5	-9.3	-24.5	-29.8	-24.8	-22.5	-13.8	-14.6	-11.4	-17.2	-17.6	-17.2	-10.5
-7.1	-5.2	-4.8	-6.2	-5.6	-9.2	-10.1	-20.4	-24.2	-22.0	-17.8	-16.4	-10.9	-7.1	-7.6	-10.1	-18.7	-18.4	-16.2	-14.4	-11.6	-12.7	-6.1	-4.5	-15.3	-31.4	-33.7	-35.9	-29.4	-25.9	-22.8	-27.9	-26.2	-15.5	-17.8	-12.5
-20.5	-15.9	-12.0	-11.0	-9.7	-10.6	-13.5	-15.7	-17.4	-22.3	-24.6	-20.9	-16.7	-13.4	-13.5	-11.8	-13.7	-11.5	-19.2	-23.9	-25.3	-15.1	-7.4	-11.7	-22.9	-24.7	-24.8	-30.5	-29.7	-28.8	-30.2	-35.7	-28.5	-23.0	-23.3	-24.5
-12.6	-6.1	-4.3	-2.3	-1.8	-1.7	-2.1	-3.0	-4.8	-5.7	-11.6	-10.2	-7.8	-5.1	-3.7	-2.1	-2.1	-3.3	-5.1	-9.6	-8.0	-4.3	-6.0	-12.9	-18.2	-24.0	-29.5	-24.8	-16.3	-11.4	-11.4	-21.2	-24.5	-28.7	-23.9	-21.8
-11.1	-7.7	-7.7	-4.8	-2.3	-3.0	-3.3	-4.1	-5.4	-7.0	-4.9	-4.5	-3.1	-2.6	-4.1	-4.1	-5.1	-4.8	-3.8	-.1	-.6	-3.2	-3.2	-5.5	-5.5	-6.6	-8.9	-8.0	-7.1	-3.9	-.6	-1.7	-5.9	-10.1	-9.3	-12.4
-13.8	-12.4	-15.6	-13.6	-10.8	-11.0	-9.6	-8.5	-7.2	-6.9	-5.8	-.6	-4.8	-9.1	-7.1	-7.0	-8.5	-5.2	-4.1	.2	.0	-3.1	-3.7	-5.3	-6.2	-6.0	-6.3	-7.1	-6.6	-1.7	-1.9	-3.2	-2.2	-6.4	-7.6	-13.4
-12.9	-11.5	-16.1	-16.2	-18.3	-17.7	-15.9	-18.2	-17.1	-13.6	-12.5	-10.0	-13.6	-18.9	-16.9	-16.7	-15.6	-13.1	-9.8	-7.5	-5.5	-7.5	-9.4	-9.3	-8.7	-8.2	-8.3	-9.8	-9.2	-6.8	-6.6	-7.2	-6.8	-9.6	-13.5	-15.0
-13.9	-12.6	-12.7	-14.3	-13.6	-13.2	-13.9	-17.0	-17.9	-14.6	-14.1	-12.8	-15.5	-17.3	-17.0	-18.3	-16.4	-16.8	-15.6	-16.3	-16.5	-15.7	-15.4	-16.3	-16.4	-15.5	-16.6	-16.9	-18.2	-17.1	-15.8	-13.8	-12.6	-12.2	-13.4	-14.1
-15.4	-14.2	-13.5	-15.5	-15.4	-13.2	-13.6	-13.4	-13.9	-14.2	-14.5	-15.2	-14.9	-15.2	-15.1	-17.1	-18.9	-17.5	-16.4	-16.1	-16.8	-16.3	-15.8	-16.3	-16.6	-15.5	-16.6	-16.9	-15.8	-15.3	-16.7	-17.0	-16.2	-17.1	-17.7	-15.7
-17.2	-15.4	-13.9	-14.9	-15.8	-17.0	-16.7	-15.4	-13.0	-14.6	-13.6	-13.9	-16.5	-15.4	-15.6	-16.2	-13.9	-12.0	-13.6	-15.2	-15.5	-16.0	-17.0	-15.1	-13.4	-13.6	-11.9	-12.6	-13.2	-12.5	-12.9	-12.7	-13.0	-14.3	-15.9	-16.5
-15.2	-16.8	-17.2	-16.8	-15.7	-15.1	-15.8	-16.8	-13.7	-11.2	-12.6	-11.4	-14.1	-12.6	-11.4	-9.3	-7.8	-7.1	-6.8	-6.2	-7.2	-6.0	-7.4	-5.0	-4.1	-5.3	-5.7	-4.1	-5.2	-4.2	-2.6	-1.9	-3.3	-3.9	-7.6	-11.5
-11.8	-13.0	-12.4	-9.9	-9.7	-9.6	-9.6	-8.4	-5.3	-3.1	-7.0	-10.0	-6.7	-3.6	-3.7	-3.0	-4.6	-5.7	-5.0	-4.2	-3.2	-2.8	-2.8	-3.0	-2.1	-2.4	-3.6	-3.8	-4.4	-3.6	-3.9	-4.0	-5.0	-3.2	-8.7	-11.2

Figure 42. ATOVS SD O-B brightness temperature differences (deg C). JULY 2005
Channel: HIRS8 (Surface)
NOAA16, using all observations



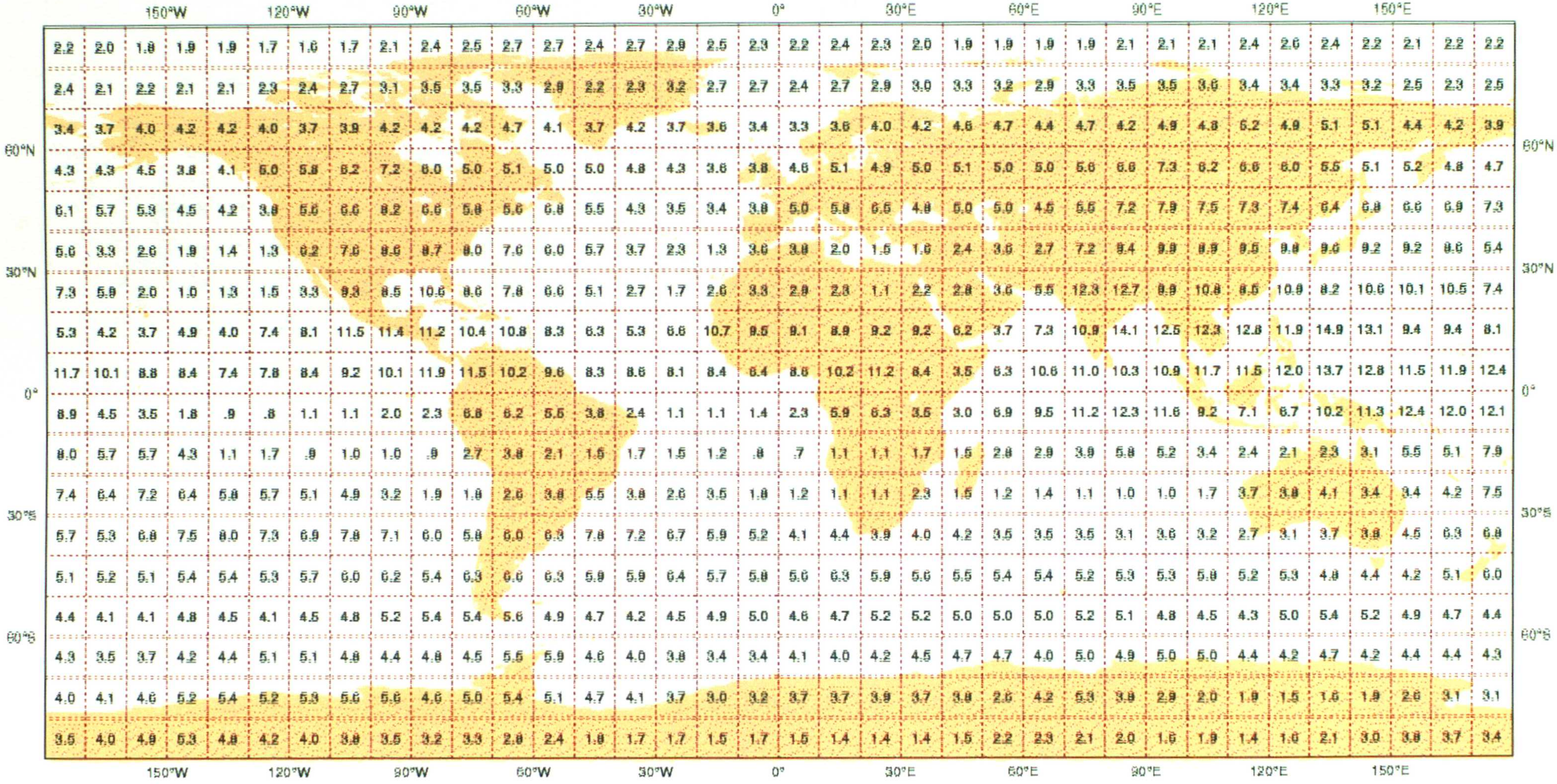
6.8	6.7	6.5	6.5	6.4	6.1	6.0	6.1	7.4	8.8	9.0	9.5	8.8	8.2	9.2	10.6	8.7	7.7	7.4	7.6	7.4	6.9	6.9	7.2	7.0	7.0	7.2	7.5	7.3	7.4	7.7	7.2	6.9	6.9	6.8	6.7
7.4	6.8	6.9	6.8	6.9	7.9	8.3	8.7	9.4	10.7	10.3	9.3	8.6	6.3	6.7	10.4	8.4	8.8	8.3	9.4	9.6	9.4	9.5	9.4	8.9	9.8	10.7	10.9	11.1	10.4	10.6	10.0	9.3	7.3	7.1	7.5
10.4	11.1	12.4	13.0	12.8	12.3	11.7	11.4	12.0	11.6	11.9	12.2	11.1	10.2	11.8	11.0	10.8	9.8	9.8	11.3	12.2	12.4	12.8	13.2	12.5	13.5	12.0	13.5	13.8	14.2	13.5	13.7	13.4	12.4	12.4	11.7
10.8	11.1	12.7	11.2	12.0	13.6	15.8	16.3	17.1	14.6	13.9	13.5	13.1	12.6	11.8	11.3	10.4	10.8	13.2	14.6	14.0	13.6	14.1	14.0	14.4	15.0	17.3	18.4	15.8	16.6	14.9	14.2	12.7	12.6	12.1	11.3
13.9	13.2	12.5	11.3	10.6	10.5	14.3	16.2	18.0	16.0	14.9	13.8	16.1	13.4	11.0	9.3	9.2	11.0	13.6	15.8	16.9	12.9	13.3	14.2	13.5	14.8	18.6	18.7	18.7	18.1	17.5	15.0	15.0	14.6	14.4	15.3
13.7	9.0	7.3	5.8	4.3	4.1	15.4	17.7	18.0	18.4	18.5	17.6	14.6	14.2	9.7	6.6	4.3	10.2	10.9	6.2	4.9	5.3	7.3	10.1	8.2	16.2	18.6	19.1	18.2	20.4	20.9	21.0	20.3	20.1	18.7	13.1
16.8	14.4	5.6	4.2	4.1	4.0	8.4	20.3	18.7	22.6	18.3	17.9	15.1	12.2	7.2	4.9	7.3	10.6	9.9	7.5	3.5	7.0	8.3	10.3	13.7	24.3	24.4	18.6	21.4	18.7	22.8	18.3	22.5	21.9	22.9	17.3
12.5	10.2	9.1	11.1	9.3	15.3	17.6	23.6	23.7	24.2	23.0	23.1	18.4	13.6	12.0	14.6	22.2	21.2	21.2	20.7	20.7	20.5	15.2	9.7	16.5	21.9	28.0	25.0	24.4	26.6	25.2	30.1	27.3	20.9	20.9	18.4
24.5	21.4	18.9	18.0	16.0	16.6	18.0	19.4	21.1	24.3	23.3	20.8	20.4	18.0	18.5	17.7	18.3	14.2	18.8	22.3	23.5	18.5	9.3	14.7	23.1	23.6	22.4	23.2	24.4	23.7	24.4	26.8	26.0	23.8	25.0	25.7
19.3	10.8	8.5	4.8	3.2	3.1	3.5	3.9	5.5	5.6	15.2	14.1	12.4	9.2	6.5	3.7	3.7	4.5	6.4	13.8	14.6	9.8	8.0	15.9	20.8	23.6	25.2	24.1	20.1	16.2	15.1	20.8	23.0	25.1	24.7	24.8
17.1	13.5	13.2	10.0	3.9	5.1	3.9	4.0	3.8	3.3	7.3	9.6	6.3	5.3	5.5	5.1	5.0	4.2	3.1	4.3	4.6	6.6	5.5	7.4	7.5	9.7	12.9	11.6	8.6	6.7	7.2	7.6	8.9	12.9	12.3	17.0
17.4	16.0	17.7	15.3	14.2	13.7	13.2	12.4	8.9	6.3	5.9	7.5	9.6	13.8	10.5	8.4	9.7	6.3	4.6	3.5	3.9	7.2	6.6	5.5	5.7	5.3	5.2	5.2	6.6	10.3	9.9	10.4	9.3	10.1	11.7	17.5
16.2	14.2	17.4	18.2	18.8	17.9	17.2	18.5	17.2	15.2	14.7	14.9	15.5	18.6	17.3	16.3	14.9	14.0	11.2	11.8	11.3	11.3	11.5	10.4	9.8	9.7	9.7	10.8	9.7	8.7	10.1	11.1	11.2	13.1	16.1	16.9
13.6	13.7	13.4	14.1	14.4	14.1	14.2	14.9	15.0	13.8	15.7	16.1	15.4	14.2	14.2	14.8	14.1	14.8	14.0	15.0	14.6	14.0	13.9	13.7	14.1	14.0	14.2	15.0	15.2	14.0	14.1	13.2	12.1	12.2	13.8	15.6
11.6	11.6	11.1	12.3	11.6	11.4	12.3	12.2	12.8	13.2	13.2	13.8	12.6	11.0	10.6	11.3	12.0	11.2	11.3	11.4	12.3	12.5	12.4	12.1	12.9	12.5	11.8	12.0	11.4	11.7	13.3	13.5	13.2	12.6	12.4	12.0
10.0	9.0	9.5	10.5	11.1	12.4	12.5	11.7	10.8	11.3	10.6	12.3	12.3	9.6	8.7	9.0	8.3	8.5	10.3	10.0	10.1	11.2	11.6	11.9	11.0	12.3	11.9	12.1	11.8	10.8	10.8	11.4	10.4	10.5	9.7	10.0
8.8	9.1	10.0	11.3	11.7	11.7	11.8	12.2	11.5	10.4	11.5	12.7	10.7	10.2	9.1	9.5	8.5	8.7	9.4	9.2	9.6	8.2	7.3	5.1	9.2	11.9	7.8	6.2	4.5	4.4	3.6	3.8	4.3	5.9	9.6	8.0
9.0	9.6	11.1	11.2	10.3	9.3	8.9	8.3	7.8	6.6	7.7	8.7	8.5	6.2	5.5	4.5	3.4	3.4	3.0	2.9	3.0	2.9	3.4	4.3	4.8	4.6	4.6	4.4	3.5	2.6	3.2	3.9	5.4	8.4	10.2	9.1

Figure 43. ATOVS MEAN O-B brightness temperature differences (deg C). JULY 2005
Channel: HIRS15 (700 hPa)
NOAA16, using all observations



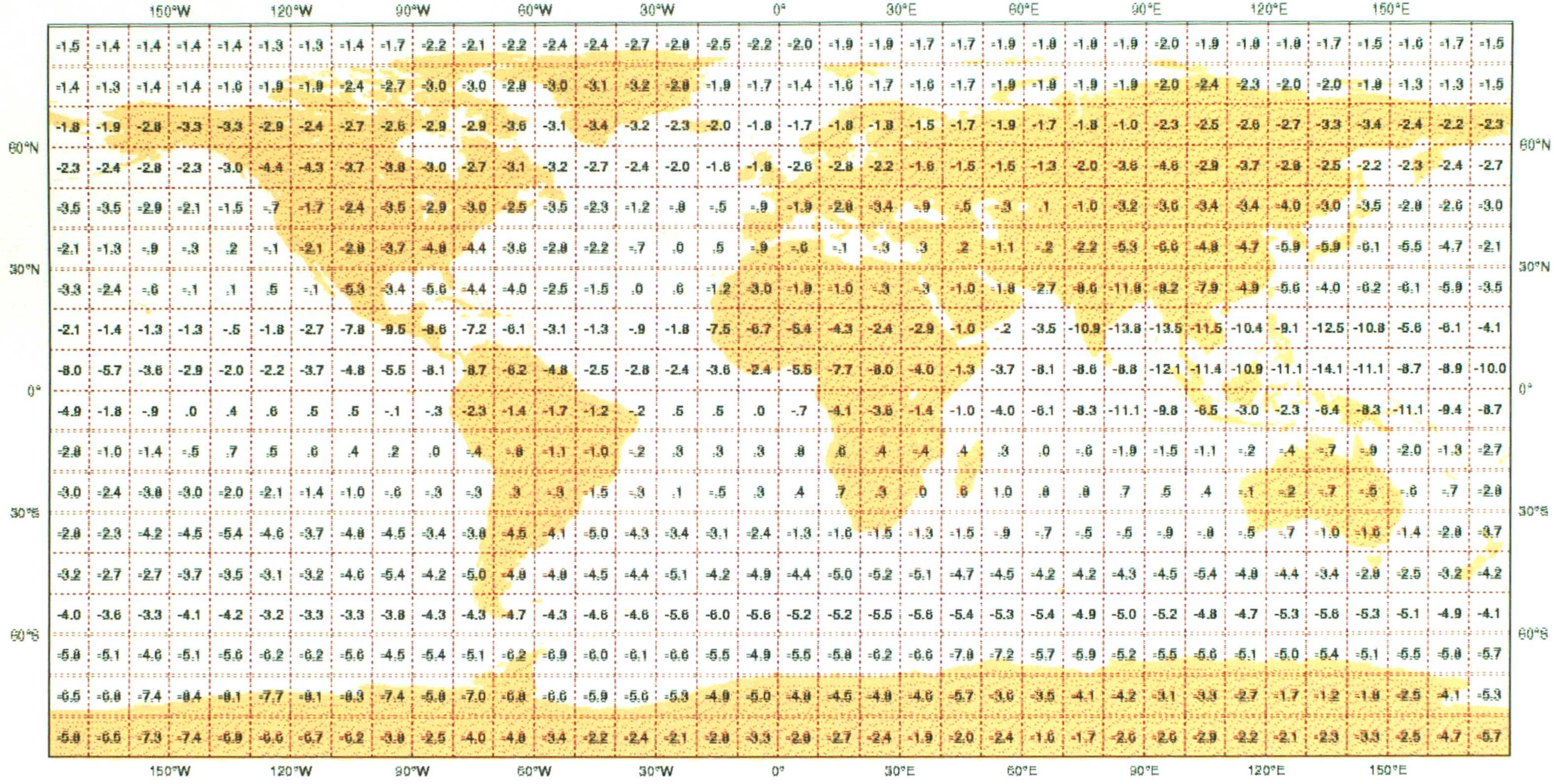
-1.3	-1.2	-1.0	-1.0	-1.0	-.9	-1.0	-.9	-1.1	-1.3	-1.2	-1.3	-1.6	-1.6	-1.8	-1.7	-1.8	-1.7	-1.6	-1.6	-1.6	-1.3	-1.3	-1.3	-1.3	-1.4	-1.4	-1.5	-1.4	-1.4	-1.4	-1.3	-1.3	-1.3	-1.4	-1.3
-1.1	-1.1	-1.2	-1.1	-1.1	-1.3	-1.5	-2.0	-2.3	-2.8	-2.8	-2.4	-2.5	-2.4	-2.3	-1.7	-1.4	-1.5	-1.7	-1.9	-1.9	-1.8	-1.8	-1.8	-1.6	-1.8	-2.1	-2.5	-3.1	-2.6	-2.1	-1.9	-2.2	-1.6	-1.3	-1.3
-2.0	-2.2	-3.3	-3.8	-3.8	-3.4	-2.7	-3.0	-2.9	-3.0	-2.9	-3.6	-3.3	-2.9	-3.0	-2.6	-2.6	-2.7	-2.7	-2.7	-2.5	-2.4	-3.0	-3.2	-3.0	-3.0	-2.6	-3.8	-4.0	-4.3	-4.5	-5.1	-5.2	-3.7	-3.2	-2.9
-3.2	-3.2	-3.5	-3.1	-3.9	-5.6	-5.5	-4.6	-4.5	-3.6	-3.5	-4.2	-3.9	-3.7	-3.5	-3.3	-3.0	-3.2	-4.0	-3.8	-3.2	-3.5	-3.8	-3.6	-3.2	-3.9	-5.0	-6.0	-5.0	-6.1	-5.4	-4.2	-3.3	-3.6	-3.9	-3.6
-4.8	-4.7	-4.1	-3.4	-2.6	-1.8	-2.5	-3.4	-4.5	-3.6	-4.0	-3.8	-4.7	-3.4	-2.8	-2.3	-2.0	-1.8	-2.9	-3.8	-4.6	-2.5	-2.7	-2.5	-1.8	-3.0	-5.6	-5.4	-5.5	-5.8	-6.6	-5.5	-5.4	-4.4	-4.2	-4.5
-3.2	-2.1	-1.7	-1.4	-1.3	-.9	-2.2	-3.9	-5.0	-6.4	-5.7	-5.0	-3.6	-3.4	-2.0	-1.3	-.9	-1.0	-1.2	-.6	-.5	-.1	-.7	-.9	-.4	-4.9	-7.8	-9.6	-8.4	-8.2	-8.2	-8.1	-8.2	-7.5	-6.7	-3.5
-4.3	-3.5	-1.3	-1.4	-1.5	-1.4	-1.8	-7.3	-4.7	-6.7	-5.4	-4.9	-3.6	-2.6	-1.5	-1.1	-1.2	-1.3	-.7	.1	.2	-.6	-1.3	-1.9	-3.5	-11.1	-14.0	-11.4	-10.5	-6.1	-6.8	-5.0	-7.7	-7.6	-7.5	-4.4
-3.1	-2.3	-2.1	-2.5	-2.2	-4.0	-4.6	-9.3	-10.7	-9.5	-7.8	-7.3	-4.8	-3.1	-3.1	-4.0	-7.6	-7.2	-6.2	-5.8	-5.3	-5.9	-3.1	-2.0	-6.3	-14.0	-15.5	-16.1	-13.1	-11.6	-10.1	-13.0	-11.8	-6.8	-7.8	-5.5
-9.4	-7.2	-5.5	-4.9	-4.3	-4.8	-5.9	-6.9	-7.6	-10.0	-10.8	-9.1	-7.3	-5.7	-5.9	-5.2	-5.9	-4.7	-7.7	-10.0	-11.0	-6.7	-2.9	-4.8	-9.9	-10.9	-10.9	-13.4	-13.0	-12.5	-13.3	-16.4	-12.9	-10.4	-10.5	-11.2
-5.7	-2.7	-1.9	-1.2	-1.0	-1.0	-1.1	-1.3	-1.7	-2.0	-4.8	-4.2	-3.2	-2.1	-1.6	-1.1	-1.1	-1.3	-1.7	-3.8	-3.4	-2.0	-2.4	-5.4	-7.9	-10.6	-13.3	-11.0	-7.0	-4.9	-4.9	-9.3	-10.9	-13.0	-10.8	-10.0
-4.8	-3.3	-3.3	-2.1	-1.1	-1.3	-1.2	-1.4	-1.6	-1.7	-1.4	-1.9	-1.4	-1.2	-1.5	-1.4	-1.5	-1.3	-.8	-.3	-.5	-1.3	-1.3	-2.0	-2.1	-2.5	-3.5	-3.0	-2.5	-1.6	-.8	-1.2	-2.3	-3.8	-3.6	-5.3
-5.1	-4.3	-5.7	-5.0	-3.9	-3.8	-3.3	-2.8	-2.2	-1.7	-1.3	-.4	-2.0	-3.4	-2.4	-1.9	-2.4	-1.4	-1.1	-.3	-.4	-1.2	-1.1	-1.3	-1.5	-1.4	-1.4	-1.5	-1.5	-1.1	-1.1	-1.6	-1.2	-2.0	-2.4	-5.0
-3.9	-3.4	-5.1	-5.5	-6.5	-5.9	-5.2	-6.2	-5.7	-4.3	-4.2	-4.0	-4.9	-6.5	-5.6	-5.4	-5.0	-4.0	-2.9	-2.5	-1.9	-2.3	-2.7	-2.4	-2.3	-2.2	-2.1	-2.5	-2.3	-1.8	-1.8	-2.0	-2.2	-2.8	-4.4	-5.0
-4.0	-3.5	-3.6	-4.3	-4.1	-3.9	-4.3	-5.4	-5.9	-4.7	-5.0	-4.6	-5.1	-5.3	-5.1	-5.6	-4.8	-5.1	-5.0	-5.3	-5.3	-5.0	-4.8	-4.9	-4.8	-4.5	-4.8	-4.9	-5.5	-5.1	-4.7	-4.0	-3.6	-3.4	-4.0	-4.5
-4.4	-3.8	-3.6	-4.4	-4.4	-3.7	-3.9	-4.0	-4.4	-4.5	-4.6	-4.7	-4.3	-4.3	-4.1	-4.8	-5.2	-4.7	-4.6	-4.6	-5.0	-4.9	-4.7	-4.8	-4.7	-4.4	-4.5	-4.5	-4.3	-4.1	-4.8	-5.1	-4.9	-5.0	-5.1	-4.4
-4.7	-4.0	-3.6	-4.1	-4.6	-5.4	-5.4	-6.0	-4.2	-4.7	-4.3	-4.8	-4.6	-3.7	-3.7	-3.9	-3.2	-2.9	-3.6	-4.1	-4.4	-4.7	-5.3	-4.8	-3.8	-3.8	-3.3	-3.6	-3.7	-3.4	-3.3	-3.5	-3.4	-3.7	-4.1	-4.3
-3.9	-4.7	-5.2	-5.7	-5.4	-5.2	-5.5	-5.6	-4.9	-3.7	-4.3	-3.7	-3.3	-2.9	-2.6	-2.5	-2.2	-2.2	-2.1	-2.0	-2.3	-2.1	-2.5	-1.1	-1.5	-2.0	-1.6	-1.1	-.9	-.5	-.1	.1	-.1	-.7	-1.8	-2.6
-2.6	-3.2	-3.9	-3.9	-3.6	-3.5	-3.5	-3.1	-1.5	-.8	-1.3	-1.3	-.7	-.2	-.3	-.2	-.3	-.5	-.3	-.2	.0	.1	.2	-.1	.1	.1	.1	.2	-.3	.1	.1	-.1	-.7	-.9	-2.0	-2.5

Figure 44. ATOVS SD O-B brightness temperature differences (deg C). JULY 2005
Channel: HIRS15 (700 hPa)
NOAA16, using all observations



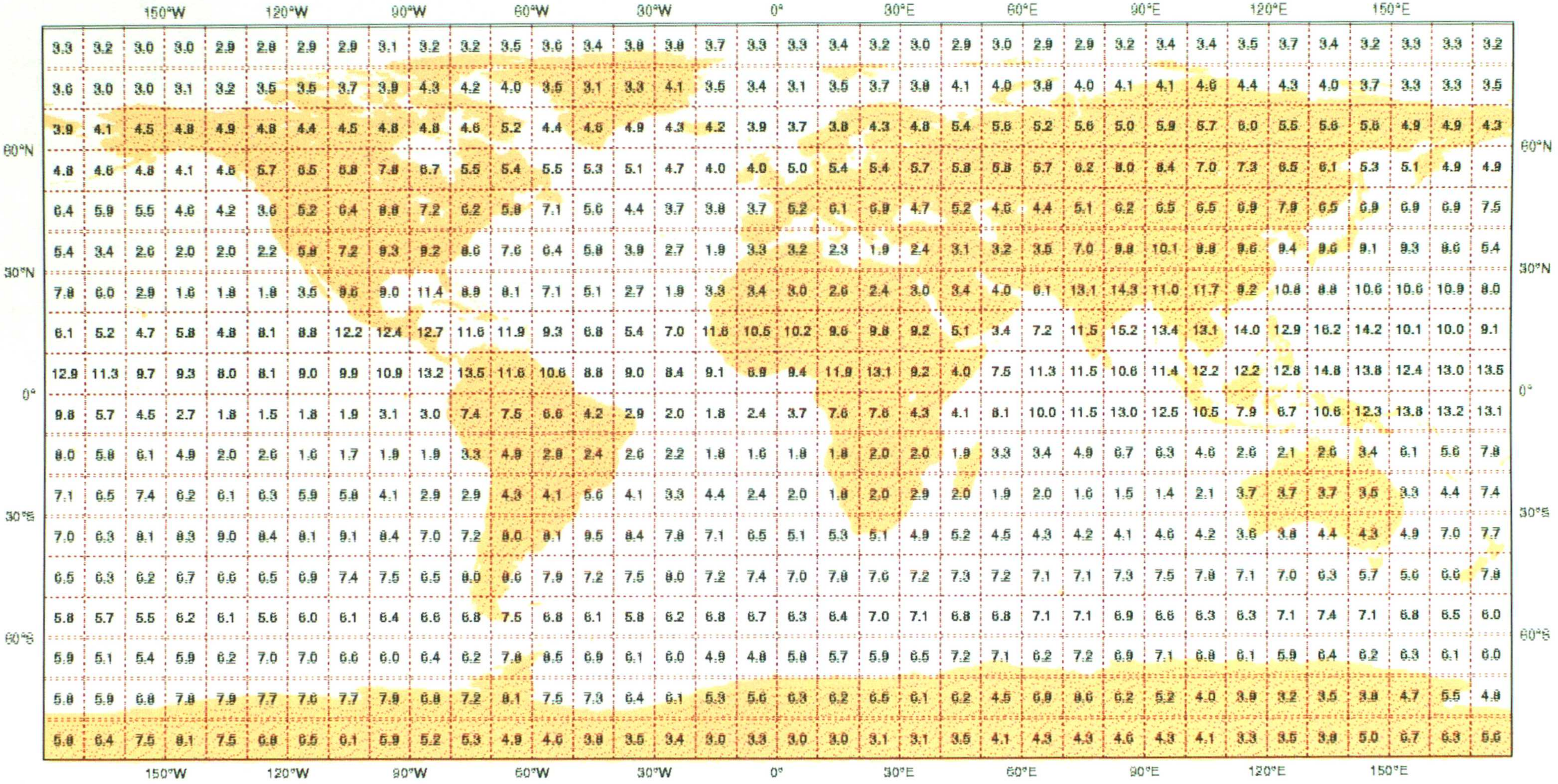
2.2	2.0	1.8	1.9	1.9	1.7	1.6	1.7	2.1	2.4	2.5	2.7	2.7	2.4	2.7	2.9	2.5	2.3	2.2	2.4	2.3	2.0	1.9	1.9	1.9	1.9	2.1	2.1	2.1	2.4	2.6	2.4	2.2	2.1	2.2	2.2
2.4	2.1	2.2	2.1	2.1	2.3	2.4	2.7	3.1	3.5	3.5	3.3	2.9	2.2	2.3	3.2	2.7	2.7	2.4	2.7	2.9	3.0	3.3	3.2	2.9	3.3	3.5	3.5	3.6	3.4	3.4	3.3	3.2	2.5	2.3	2.5
3.4	3.7	4.0	4.2	4.2	4.0	3.7	3.9	4.2	4.2	4.2	4.7	4.1	3.7	4.2	3.7	3.6	3.4	3.3	3.6	4.0	4.2	4.6	4.7	4.4	4.7	4.2	4.9	4.8	5.2	4.9	5.1	5.1	4.4	4.2	3.9
4.3	4.3	4.5	3.8	4.1	6.0	5.8	6.2	7.2	6.0	5.0	5.1	5.0	5.0	4.8	4.3	3.6	3.8	4.6	5.1	4.9	5.0	5.1	5.0	5.0	5.6	6.6	7.3	6.2	6.6	6.0	6.5	5.1	5.2	4.8	4.7
6.1	5.7	5.3	4.5	4.2	3.8	5.6	6.6	8.2	6.6	5.8	5.6	6.8	5.5	4.3	3.5	3.4	3.8	5.0	5.8	6.5	4.8	5.0	5.0	4.5	5.6	7.2	7.9	7.5	7.3	7.4	6.4	6.8	6.6	6.9	7.3
5.6	3.3	2.6	1.9	1.4	1.3	6.2	7.6	8.6	8.7	8.0	7.6	6.0	5.7	3.7	2.3	1.3	3.6	3.8	2.0	1.5	1.6	2.4	3.6	2.7	7.2	9.4	9.9	8.9	9.5	9.8	9.6	9.2	9.2	8.6	5.4
7.3	5.9	2.0	1.0	1.3	1.5	3.3	9.3	8.5	10.6	8.6	7.8	6.6	5.1	2.7	1.7	2.6	3.3	2.9	2.8	1.1	2.2	2.8	3.6	5.5	12.3	12.7	8.9	10.8	8.5	10.9	8.2	10.6	10.1	10.5	7.4
5.3	4.2	3.7	4.9	4.0	7.4	8.1	11.5	11.4	11.2	10.4	10.8	8.3	6.3	5.3	6.6	10.7	9.5	9.1	8.9	9.2	9.2	6.2	3.7	7.3	10.9	14.1	12.5	12.3	12.8	11.9	14.9	13.1	9.4	9.4	8.1
11.7	10.1	8.8	8.4	7.4	7.8	8.4	9.2	10.1	11.9	11.5	10.2	9.6	8.3	8.6	8.1	8.4	6.4	8.8	10.2	11.2	8.4	3.5	6.3	10.6	11.0	10.3	10.9	11.7	11.5	12.0	13.7	12.8	11.5	11.9	12.4
8.9	4.5	3.5	1.8	.9	.8	1.1	1.1	2.0	2.3	6.8	6.2	5.5	3.8	2.4	1.1	1.1	1.4	2.3	5.9	6.3	3.5	3.0	6.9	9.5	11.2	12.3	11.6	9.2	7.1	6.7	10.2	11.3	12.4	12.0	12.1
8.0	5.7	5.7	4.3	1.1	1.7	.9	1.0	1.0	.9	2.7	3.8	2.1	1.6	1.7	1.5	1.2	.8	.7	1.1	1.1	1.7	1.5	2.8	2.9	3.9	5.8	5.2	3.4	2.4	2.1	2.3	3.1	5.5	5.1	7.9
7.4	6.4	7.2	6.4	5.8	5.7	5.1	4.9	3.2	1.9	1.8	2.6	3.8	5.5	3.8	2.6	3.5	1.8	1.2	1.1	1.1	2.3	1.5	1.2	1.4	1.1	1.0	1.0	1.7	3.7	3.8	4.1	3.4	3.4	4.2	7.5
5.7	5.3	6.8	7.5	8.0	7.3	6.9	7.8	7.1	6.0	5.8	6.0	6.3	7.8	7.2	6.7	5.9	5.2	4.1	4.4	3.9	4.0	4.2	3.5	3.5	3.5	3.1	3.6	3.2	2.7	3.1	3.7	3.8	4.5	6.3	6.8
5.1	5.2	5.1	5.4	5.4	5.3	5.7	6.0	6.2	5.4	6.3	6.6	6.3	5.9	5.9	6.4	5.7	5.8	5.6	6.3	5.9	5.6	5.5	5.4	5.4	5.2	5.3	5.3	5.8	5.2	5.3	4.8	4.4	4.2	5.1	6.0
4.4	4.1	4.1	4.8	4.5	4.1	4.5	4.8	5.2	5.4	5.4	5.6	4.9	4.7	4.2	4.5	4.9	5.0	4.6	4.7	5.2	5.2	5.0	5.0	5.0	5.2	5.1	4.8	4.5	4.3	5.0	5.4	5.2	4.9	4.7	4.4
4.3	3.5	3.7	4.2	4.4	5.1	5.1	4.8	4.4	4.8	4.5	5.5	5.9	4.6	4.0	3.8	3.4	3.4	4.1	4.0	4.2	4.5	4.7	4.7	4.0	5.0	4.9	5.0	5.0	4.4	4.2	4.7	4.2	4.4	4.4	4.3
4.0	4.1	4.6	5.2	5.4	5.2	5.3	5.6	5.6	4.6	5.0	5.4	5.1	4.7	4.1	3.7	3.0	3.2	3.7	3.7	3.9	3.7	3.8	2.6	4.2	5.3	3.8	2.9	2.0	1.9	1.5	1.6	1.9	2.6	3.1	3.1
3.5	4.0	4.9	5.3	4.8	4.2	4.0	3.8	3.5	3.2	3.3	2.8	2.4	1.8	1.7	1.7	1.5	1.7	1.5	1.4	1.4	1.4	1.5	2.2	2.3	2.1	2.0	1.6	1.9	1.4	1.0	2.1	3.0	3.8	3.7	3.4

Figure 45. ATOVS MEAN O-B brightness temperature differences (deg C). JULY 2005
Channel: HIRS11 (500 - 700 hPa)
NOAA16, using all observations



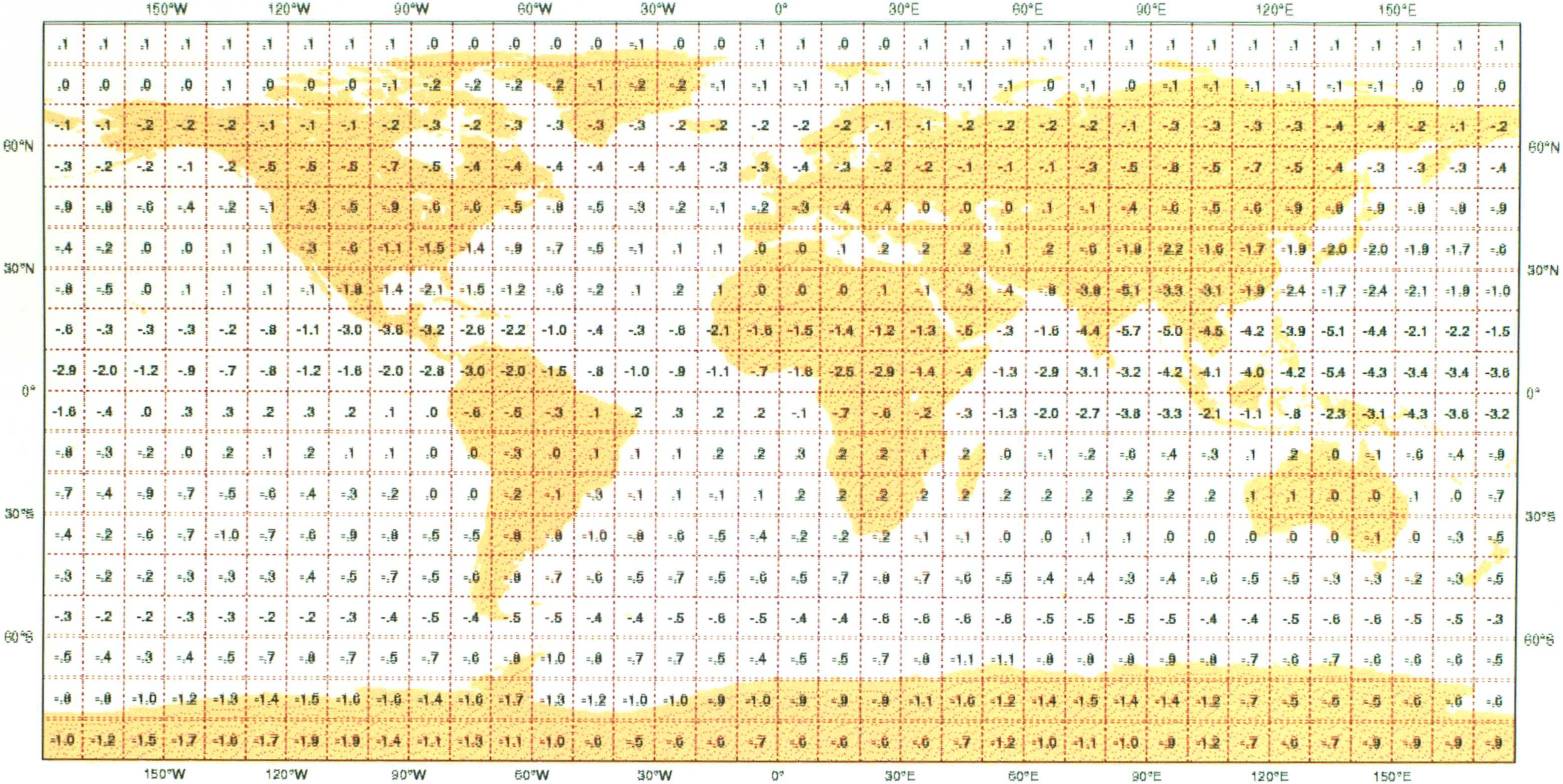
-1.5	-1.4	-1.4	-1.4	-1.4	-1.3	-1.3	-1.4	-1.7	-2.2	-2.1	-2.2	-2.4	-2.4	-2.7	-2.8	-2.5	-2.2	-2.0	-1.9	-1.9	-1.7	-1.7	-1.9	-1.8	-1.8	-1.9	-2.0	-1.9	-1.8	-1.8	-1.7	-1.5	-1.6	-1.7	-1.5
-1.4	-1.3	-1.4	-1.4	-1.6	-1.9	-1.9	-2.4	-2.7	-3.0	-3.0	-2.8	-3.0	-3.1	-3.2	-2.8	-1.9	-1.7	-1.4	-1.6	-1.7	-1.6	-1.7	-1.9	-1.8	-1.9	-1.9	-2.0	-2.4	-2.3	-2.0	-2.0	-1.8	-1.3	-1.3	-1.5
-1.8	-1.9	-2.8	-3.3	-3.3	-2.9	-2.4	-2.7	-2.6	-2.9	-2.9	-3.6	-3.1	-3.4	-3.2	-2.3	-2.0	-1.8	-1.7	-1.8	-1.8	-1.5	-1.7	-1.9	-1.7	-1.8	-1.0	-2.3	-2.5	-2.6	-2.7	-3.3	-3.4	-2.4	-2.2	-2.3
-2.3	-2.4	-2.8	-2.3	-3.0	-4.4	-4.3	-3.7	-3.8	-3.0	-2.7	-3.1	-3.2	-2.7	-2.4	-2.0	-1.6	-1.8	-2.6	-2.8	-2.2	-1.6	-1.5	-1.5	-1.3	-2.0	-3.6	-4.6	-2.9	-3.7	-2.8	-2.5	-2.2	-2.3	-2.4	-2.7
-3.5	-3.5	-2.9	-2.1	-1.5	-.7	-1.7	-2.4	-3.5	-2.9	-3.0	-2.5	-3.5	-2.3	-1.2	-.8	-.5	-.9	-1.9	-2.8	-3.4	-.9	-.5	-.3	.1	-1.0	-3.2	-3.6	-3.4	-3.4	-4.0	-3.0	-3.5	-2.8	-2.6	-3.0
-2.1	-1.3	-.9	-.3	.2	-.1	-2.1	-2.8	-3.7	-4.8	-4.4	-3.6	-2.8	-2.2	-.7	.0	.5	-.9	-.6	-.1	-.3	.3	.2	-1.1	-.2	-2.2	-5.3	-6.6	-4.8	-4.7	-5.9	-5.9	-6.1	-5.5	-4.7	-2.1
-3.3	-2.4	-.6	-.1	.1	.5	-.1	-5.3	-3.4	-5.6	-4.4	-4.0	-2.5	-1.5	.0	.6	-1.2	-3.0	-1.9	-1.0	-.3	-.3	-1.0	-1.8	-2.7	-8.6	-11.8	-8.2	-7.9	-4.9	-5.6	-4.0	-6.2	-6.1	-5.9	-3.5
-2.1	-1.4	-1.3	-1.3	-.5	-1.8	-2.7	-7.8	-9.5	-8.6	-7.2	-6.1	-3.1	-1.3	-.9	-1.8	-7.5	-6.7	-5.4	-4.3	-2.4	-2.9	-1.0	-.2	-3.5	-10.9	-13.8	-13.5	-11.5	-10.4	-9.1	-12.5	-10.8	-5.6	-6.1	-4.1
-8.0	-5.7	-3.6	-2.9	-2.0	-2.2	-3.7	-4.8	-5.5	-8.1	-8.7	-6.2	-4.8	-2.5	-2.8	-2.4	-3.6	-2.4	-5.5	-7.7	-8.0	-4.0	-1.3	-3.7	-8.1	-8.6	-8.8	-12.1	-11.4	-10.9	-11.1	-14.1	-11.1	-8.7	-8.9	-10.0
-4.9	-1.8	-.9	.0	.4	.6	.5	.5	-.1	-.3	-2.3	-1.4	-1.7	-1.2	-.2	.5	.5	.0	-.7	-4.1	-3.6	-1.4	-1.0	-4.0	-6.1	-8.3	-11.1	-9.8	-6.5	-3.0	-2.3	-6.4	-8.3	-11.1	-9.4	-8.7
-2.8	-1.0	-1.4	-.5	.7	.5	.6	.4	.2	.0	-.4	-.8	-1.1	-1.0	-.2	.3	.3	.3	.8	.6	.4	-.4	.4	.3	.0	-.6	-1.9	-1.5	-1.1	-.2	-.4	-.7	-.9	-2.0	-1.3	-2.7
-3.0	-2.4	-3.8	-3.0	-2.0	-2.1	-1.4	-1.0	-.6	-.3	-.3	.3	-.3	-1.5	-.3	.1	-.5	.3	.4	.7	.3	.0	.6	1.0	.8	.8	.7	.5	.4	-.1	-.2	-.7	-.5	-.6	-.7	-2.8
-2.8	-2.3	-4.2	-4.5	-5.4	-4.6	-3.7	-4.8	-4.5	-3.4	-3.8	-4.5	-4.1	-5.0	-4.3	-3.4	-3.1	-2.4	-1.3	-1.6	-1.5	-1.3	-1.5	-.9	-.7	-.5	-.5	-.9	-.8	-.5	-.7	-1.0	-1.6	-1.4	-2.8	-3.7
-3.2	-2.7	-2.7	-3.7	-3.5	-3.1	-3.2	-4.6	-5.4	-4.2	-5.0	-4.8	-4.8	-4.5	-4.4	-5.1	-4.2	-4.9	-4.4	-5.0	-5.2	-5.1	-4.7	-4.5	-4.2	-4.2	-4.3	-4.5	-5.4	-4.8	-4.4	-3.4	-2.8	-2.5	-3.2	-4.2
-4.0	-3.6	-3.3	-4.1	-4.2	-3.2	-3.3	-3.3	-3.8	-4.3	-4.3	-4.7	-4.3	-4.6	-4.6	-5.6	-6.0	-5.6	-5.2	-5.2	-5.5	-5.6	-5.4	-5.3	-5.4	-4.9	-5.0	-5.2	-4.8	-4.7	-5.3	-5.6	-5.3	-5.1	-4.9	-4.1
-5.8	-5.1	-4.6	-5.1	-5.6	-6.2	-6.2	-5.6	-4.5	-5.4	-5.1	-6.2	-6.9	-6.0	-6.1	-6.6	-5.5	-4.9	-5.6	-5.8	-6.2	-6.6	-7.8	-7.2	-5.7	-5.9	-5.2	-5.5	-5.6	-6.1	-5.0	-5.4	-5.1	-5.5	-5.8	-5.7
-6.5	-6.8	-7.4	-8.4	-8.1	-7.7	-8.1	-8.3	-7.4	-5.8	-7.0	-6.8	-6.6	-5.9	-5.6	-5.3	-4.9	-5.0	-4.8	-4.5	-4.8	-4.6	-5.7	-3.6	-3.5	-4.1	-4.2	-3.1	-3.3	-2.7	-1.7	-1.2	-1.8	-2.5	-4.1	-5.3
-5.8	-6.5	-7.3	-7.4	-6.9	-6.6	-6.7	-6.2	-3.8	-2.5	-4.0	-4.8	-3.4	-2.2	-2.4	-2.1	-2.8	-3.3	-2.8	-2.7	-2.4	-1.9	-2.0	-2.4	-1.6	-1.7	-2.6	-2.6	-2.9	-2.2	-2.1	-2.3	-3.3	-2.5	-4.7	-5.7

Figure 46. ATOVS SD O-B brightness temperature differences (deg C). JULY 2005
Channel: HIRS11 (500 - 700 hPa)
NOAA16, using all observations



3.3	3.2	3.0	3.0	2.9	2.8	2.9	2.8	3.1	3.2	3.2	3.5	3.6	3.4	3.8	3.8	3.7	3.3	3.3	3.4	3.2	3.0	2.9	3.0	2.9	2.9	3.2	3.4	3.4	3.5	3.7	3.4	3.2	3.3	3.3	3.2
3.6	3.0	3.0	3.1	3.2	3.5	3.5	3.7	3.9	4.3	4.2	4.0	3.5	3.1	3.3	4.1	3.5	3.4	3.1	3.5	3.7	3.8	4.1	4.0	3.8	4.0	4.1	4.1	4.6	4.4	4.3	4.0	3.7	3.3	3.3	3.5
3.9	4.1	4.5	4.8	4.9	4.8	4.4	4.5	4.8	4.8	4.6	5.2	4.4	4.6	4.9	4.3	4.2	3.9	3.7	3.8	4.3	4.8	5.4	5.6	5.2	5.6	5.0	5.9	5.7	6.0	5.5	5.6	5.8	4.9	4.9	4.3
4.8	4.6	4.8	4.1	4.6	5.7	6.5	6.8	7.8	6.7	5.5	5.4	5.5	5.3	5.1	4.7	4.0	4.0	5.0	5.4	5.4	5.7	5.8	5.8	5.7	6.2	8.0	8.4	7.0	7.3	6.5	6.1	5.3	5.1	4.9	4.9
6.4	5.9	5.5	4.6	4.2	3.6	5.2	6.4	8.8	7.2	6.2	5.8	7.1	5.6	4.4	3.7	3.8	3.7	5.2	6.1	6.9	4.7	5.2	4.6	4.4	5.1	6.2	6.5	6.5	6.9	7.9	6.5	6.9	6.9	6.9	7.5
5.4	3.4	2.6	2.0	2.0	2.2	5.8	7.2	9.3	9.2	8.6	7.6	6.4	5.8	3.9	2.7	1.9	3.3	3.2	2.3	1.9	2.4	3.1	3.2	3.5	7.0	9.8	10.1	8.8	9.6	9.4	9.6	9.1	9.3	8.6	5.4
7.8	6.0	2.9	1.6	1.8	1.8	3.5	9.6	9.0	11.4	8.9	8.1	7.1	5.1	2.7	1.9	3.3	3.4	3.0	2.6	2.4	3.0	3.4	4.0	6.1	13.1	14.3	11.0	11.7	9.2	10.8	8.8	10.6	10.6	10.9	8.0
6.1	5.2	4.7	5.8	4.8	8.1	8.8	12.2	12.4	12.7	11.6	11.9	9.3	6.8	5.4	7.0	11.6	10.5	10.2	9.6	9.8	9.2	5.1	3.4	7.2	11.5	15.2	13.4	13.1	14.0	12.9	16.2	14.2	10.1	10.0	9.1
12.9	11.3	9.7	9.3	8.0	8.1	9.0	9.9	10.9	13.2	13.5	11.6	10.6	8.8	9.0	8.4	9.1	6.9	9.4	11.9	13.1	9.2	4.0	7.5	11.3	11.5	10.6	11.4	12.2	12.2	12.8	14.8	13.8	12.4	13.0	13.5
9.8	5.7	4.5	2.7	1.8	1.5	1.8	1.9	3.1	3.0	7.4	7.5	6.6	4.2	2.9	2.0	1.8	2.4	3.7	7.6	7.6	4.3	4.1	8.1	10.0	11.5	13.0	12.5	10.5	7.9	6.7	10.6	12.3	13.8	13.2	13.1
8.0	5.8	6.1	4.9	2.0	2.6	1.6	1.7	1.9	1.9	3.3	4.9	2.8	2.4	2.6	2.2	1.8	1.6	1.8	1.8	2.0	2.0	1.9	3.3	3.4	4.9	6.7	6.3	4.6	2.6	2.1	2.6	3.4	6.1	5.6	7.8
7.1	6.5	7.4	6.2	6.1	6.3	5.9	5.8	4.1	2.9	2.9	4.3	4.1	5.6	4.1	3.3	4.4	2.4	2.0	1.8	2.0	2.9	2.0	1.9	2.0	1.6	1.5	1.4	2.1	3.7	3.7	3.7	3.5	3.3	4.4	7.4
7.0	6.3	8.1	8.3	9.0	8.4	8.1	9.1	8.4	7.0	7.2	8.0	8.1	9.5	8.4	7.8	7.1	6.5	5.1	5.3	5.1	4.9	5.2	4.5	4.3	4.2	4.1	4.6	4.2	3.6	3.8	4.4	4.3	4.9	7.0	7.7
6.5	6.3	6.2	6.7	6.6	6.5	6.9	7.4	7.5	6.5	8.0	8.6	7.9	7.2	7.5	8.0	7.2	7.4	7.0	7.8	7.6	7.2	7.3	7.2	7.1	7.1	7.3	7.5	7.8	7.1	7.0	6.3	5.7	5.6	6.6	7.8
5.8	5.7	5.5	6.2	6.1	5.6	6.0	6.1	6.4	6.6	6.8	7.5	6.8	6.1	5.8	6.2	6.8	6.7	6.3	6.4	7.0	7.1	6.8	6.8	7.1	7.1	6.9	6.6	6.3	6.3	7.1	7.4	7.1	6.8	6.5	6.0
5.9	5.1	5.4	5.9	6.2	7.0	7.0	6.6	6.0	6.4	6.2	7.8	8.5	6.9	6.1	6.0	4.9	4.8	5.8	5.7	5.9	6.5	7.2	7.1	6.2	7.2	6.9	7.1	6.8	6.1	5.9	6.4	6.2	6.3	6.1	6.0
5.8	5.9	6.8	7.8	7.9	7.7	7.6	7.7	7.9	6.8	7.2	8.1	7.5	7.3	6.4	6.1	5.3	5.6	6.3	6.2	6.5	6.1	6.2	4.5	6.9	8.6	6.2	5.2	4.0	3.9	3.2	3.5	3.8	4.7	5.5	4.8
5.8	6.4	7.5	8.1	7.5	6.8	6.5	6.1	5.9	5.2	5.3	4.9	4.6	3.8	3.5	3.4	3.0	3.3	3.0	3.0	3.1	3.1	3.5	4.1	4.3	4.3	4.6	4.3	4.1	3.3	3.5	3.8	5.0	6.7	6.3	5.6

Figure 47. ATOVS MEAN O-B brightness temperature differences (deg C). JULY 2005
Channel: HIRS4 (400 hPa)
NOAA16, using all observations



.1	.1	.1	.1	.1	.1	.1	.1	.1	.0	.0	.0	.0	.0	-.1	.0	.0	.1	.1	.0	.0	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
.0	.0	.0	.0	.1	.0	.0	.0	-.1	-.2	-.2	-.2	-.2	-.1	-.2	-.2	-.1	-.1	-.1	-.1	-.1	-.1	-.1	-.1	.0	-.1	.0	-.1	-.1	-.1	-.1	-.1	-.1	.0	.0	.0
-.1	-.1	-.2	-.2	-.2	-.1	-.1	-.1	-.2	-.3	-.2	-.3	-.3	-.3	-.3	-.2	-.2	-.2	-.2	-.2	-.1	-.1	-.2	-.2	-.2	-.2	-.1	-.3	-.3	-.3	-.3	-.4	-.4	-.2	-.1	-.2
-.3	-.2	-.2	-.1	-.2	-.5	-.5	-.5	-.7	-.5	-.4	-.4	-.4	-.4	-.4	-.4	-.3	-.3	-.4	-.3	-.2	-.2	-.1	-.1	-.1	-.3	-.5	-.8	-.5	-.7	-.5	-.4	-.3	-.3	-.3	-.4
-.9	-.8	-.6	-.4	-.2	-.1	-.3	-.5	-.9	-.6	-.6	-.5	-.8	-.5	-.3	-.2	-.1	-.2	-.3	-.4	-.4	.0	.0	.0	.1	-.1	-.4	-.6	-.5	-.6	-.9	-.8	-.9	-.8	-.8	-.9
-.4	-.2	.0	.0	.1	.1	-.3	-.6	-1.1	-1.5	-1.4	-.9	-.7	-.5	-.1	.1	.1	.0	.0	.1	.2	.2	.2	.1	.2	-.6	-1.8	-2.2	-1.6	-1.7	-1.9	-2.0	-2.0	-1.9	-1.7	-.6
-.8	-.5	.0	.1	.1	.1	-.1	-1.8	-1.4	-2.1	-1.5	-1.2	-.6	-.2	.1	.2	.1	.0	.0	.0	.1	-.1	-.3	-.4	-.8	-3.8	-5.1	-3.3	-3.1	-1.9	-2.4	-1.7	-2.4	-2.1	-1.9	-1.0
-.6	-.3	-.3	-.3	-.2	-.8	-1.1	-3.0	-3.6	-3.2	-2.6	-2.2	-1.0	-.4	-.3	-.6	-2.1	-1.6	-1.5	-1.4	-1.2	-1.3	-.5	-.3	-1.6	-4.4	-5.7	-5.0	-4.5	-4.2	-3.9	-5.1	-4.4	-2.1	-2.2	-1.5
-2.9	-2.0	-1.2	-.9	-.7	-.8	-1.2	-1.6	-2.0	-2.8	-3.0	-2.0	-1.5	-.8	-1.0	-.9	-1.1	-.7	-1.6	-2.5	-2.9	-1.4	-.4	-1.3	-2.9	-3.1	-3.2	-4.2	-4.1	-4.0	-4.2	-5.4	-4.3	-3.4	-3.4	-3.6
-1.6	-.4	.0	.3	.3	.2	.3	.2	.1	.0	-.6	-.5	-.3	.1	.2	.3	.2	.2	-.1	-.7	-.6	-.2	-.3	-1.3	-2.0	-2.7	-3.8	-3.3	-2.1	-1.1	-.8	-2.3	-3.1	-4.3	-3.6	-3.2
-.8	-.3	-.2	.0	.2	.1	.2	.1	.1	.0	.0	-.3	.0	.1	.1	.1	.2	.2	.3	.2	.2	.1	.2	.0	-.1	-.2	-.6	-.4	-.3	.1	.2	.0	-.1	-.6	-.4	-.9
-.7	-.4	-.9	-.7	-.5	-.6	-.4	-.3	-.2	.0	.0	-.2	-.1	-.3	-.1	.1	-.1	.1	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.1	.1	.0	.0	.1	.0	-.7
-.4	-.2	-.6	-.7	-1.0	-.7	-.6	-.9	-.8	-.5	-.5	-.8	-.8	-1.0	-.8	-.6	-.5	-.4	-.2	-.2	-.2	-.1	-.1	.0	.0	.1	.1	.0	.0	.0	.0	.0	-.1	.0	-.3	-.5
-.3	-.2	-.2	-.3	-.3	-.3	-.4	-.5	-.7	-.5	-.6	-.8	-.7	-.6	-.5	-.7	-.5	-.6	-.5	-.7	-.8	-.7	-.6	-.5	-.4	-.4	-.3	-.4	-.6	-.5	-.5	-.3	-.3	-.2	-.3	-.5
-.3	-.2	-.2	-.3	-.3	-.2	-.2	-.3	-.4	-.5	-.4	-.5	-.5	-.4	-.4	-.5	-.6	-.5	-.4	-.4	-.6	-.6	-.6	-.6	-.5	-.5	-.5	-.5	-.4	-.4	-.5	-.6	-.6	-.5	-.5	-.3
-.5	-.4	-.3	-.4	-.5	-.7	-.8	-.7	-.5	-.7	-.6	-.8	-1.0	-.8	-.7	-.7	-.5	-.4	-.5	-.5	-.7	-.8	-1.1	-1.1	-.8	-.8	-.8	-.9	-.8	-.7	-.6	-.7	-.6	-.6	-.6	-.5
-.8	-.8	-1.0	-1.2	-1.3	-1.4	-1.5	-1.6	-1.6	-1.4	-1.6	-1.7	-1.3	-1.2	-1.0	-1.0	-.9	-1.0	-.9	-.9	-.9	-1.1	-1.6	-1.2	-1.4	-1.5	-1.4	-1.4	-1.2	-.7	-.5	-.5	-.5	-.6	-.6	-.6
-1.0	-1.2	-1.5	-1.7	-1.8	-1.7	-1.9	-1.9	-1.4	-1.1	-1.3	-1.1	-1.0	-.8	-.5	-.6	-.6	-.7	-.6	-.6	-.6	-.6	-.7	-1.2	-1.0	-1.1	-1.0	-.9	-1.2	-.7	-.6	-.7	-.9	-.9	-.9	-.9

Figure 48. ATOVS SD O-B brightness temperature differences (deg C). JULY 2005
Channel: HIRS4 (400 hPa)
NOAA16, using all observations

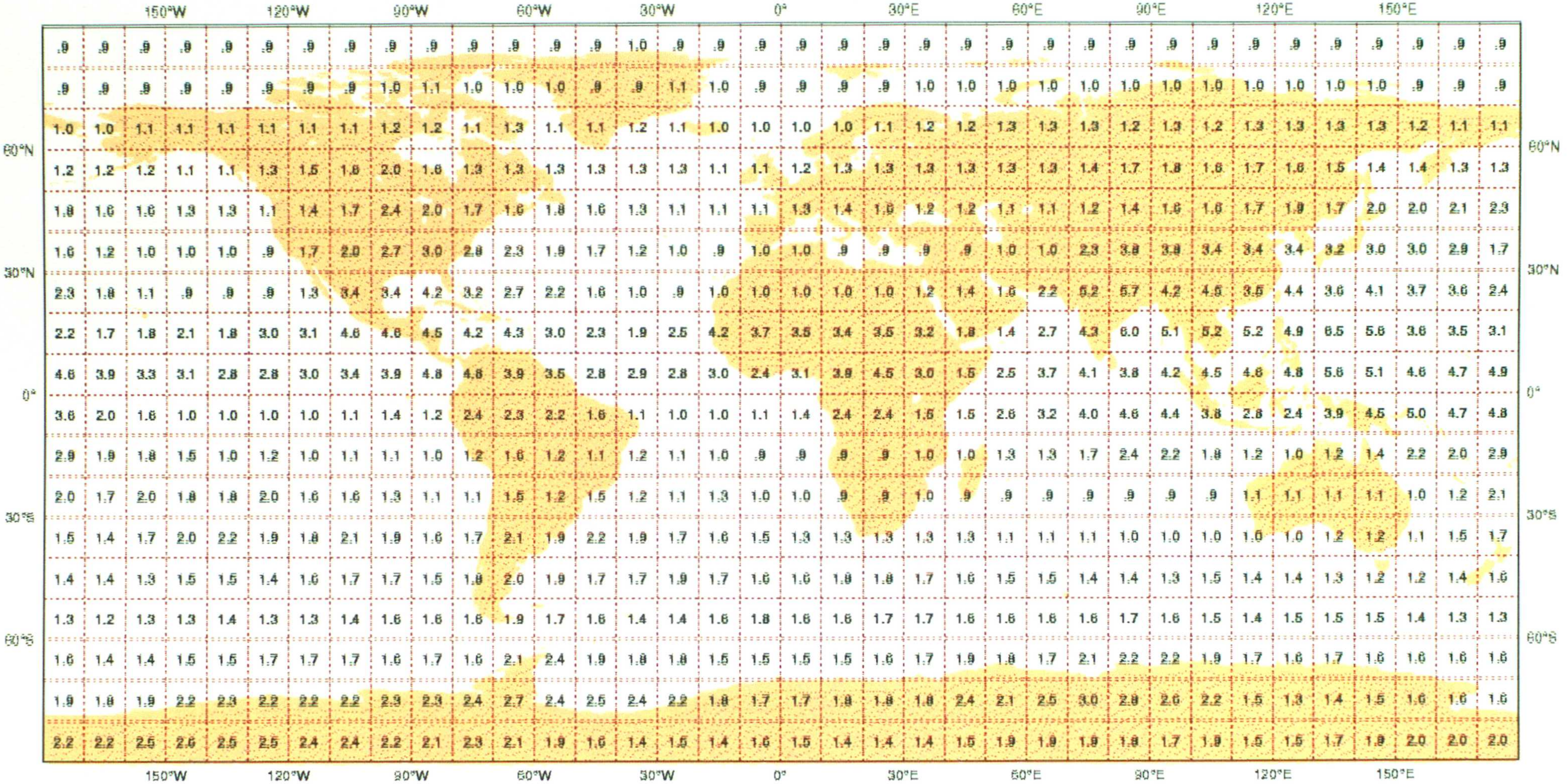

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
.9 .9 .9 .9 .9 .9 .9 .9 .9 .9 .9 .9 .9 .9 1.0 .9 .9 .9 .9 .9 .9 .9 .9 .9 .9 .9 .9 .9 .9 .9 .9 .9 .9 .9 .9 .9
.9 .9 .9 .9 .9 .9 .9 .9 1.0 1.1 1.0 1.0 1.0 .9 .9 1.1 1.0 .9 .9 .9 .9 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 .9 .9 .9
1.0 1.0 1.1 1.1 1.1 1.1 1.1 1.1 1.2 1.2 1.1 1.3 1.1 1.1 1.2 1.1 1.0 1.0 1.0 1.0 1.1 1.2 1.2 1.3 1.3 1.3 1.2 1.3 1.2 1.3 1.3 1.3 1.3 1.2 1.1 1.1
1.2 1.2 1.2 1.1 1.1 1.3 1.5 1.8 2.0 1.8 1.3 1.3 1.3 1.3 1.3 1.3 1.1 1.1 1.2 1.3 1.3 1.3 1.3 1.3 1.3 1.4 1.7 1.8 1.6 1.7 1.6 1.5 1.4 1.4 1.3 1.3
1.8 1.6 1.6 1.3 1.3 1.1 1.4 1.7 2.4 2.0 1.7 1.6 1.8 1.6 1.3 1.1 1.1 1.1 1.3 1.4 1.6 1.2 1.2 1.1 1.1 1.2 1.4 1.6 1.6 1.7 1.9 1.7 2.0 2.0 2.1 2.3
1.6 1.2 1.0 1.0 1.0 .9 1.7 2.0 2.7 3.0 2.8 2.3 1.9 1.7 1.2 1.0 .9 1.0 1.0 .9 .9 .9 .9 1.0 1.0 2.3 3.8 3.8 3.4 3.4 3.4 3.2 3.0 3.0 2.9 1.7
2.3 1.8 1.1 .9 .9 .9 1.3 3.4 3.4 4.2 3.2 2.7 2.2 1.6 1.0 .9 1.0 1.0 1.0 1.0 1.0 1.2 1.4 1.6 2.2 5.2 5.7 4.2 4.6 3.5 4.4 3.6 4.1 3.7 3.6 2.4
2.2 1.7 1.8 2.1 1.8 3.0 3.1 4.6 4.6 4.5 4.2 4.3 3.0 2.3 1.9 2.5 4.2 3.7 3.5 3.4 3.5 3.2 1.8 1.4 2.7 4.3 6.0 5.1 5.2 5.2 4.9 6.5 5.6 3.6 3.5 3.1
4.6 3.9 3.3 3.1 2.8 2.8 3.0 3.4 3.9 4.8 4.8 3.9 3.5 2.8 2.9 2.8 3.0 2.4 3.1 3.8 4.5 3.0 1.5 2.5 3.7 4.1 3.8 4.2 4.5 4.6 4.8 5.6 5.1 4.6 4.7 4.9
3.6 2.0 1.6 1.0 1.0 1.0 1.0 1.1 1.4 1.2 2.4 2.3 2.2 1.6 1.1 1.0 1.0 1.1 1.4 2.4 2.4 1.6 1.5 2.6 3.2 4.0 4.6 4.4 3.8 2.8 2.4 3.9 4.5 5.0 4.7 4.8
2.9 1.9 1.8 1.5 1.0 1.2 1.0 1.1 1.1 1.0 1.2 1.6 1.2 1.1 1.2 1.1 1.0 .9 .9 .9 .9 1.0 1.0 1.3 1.3 1.7 2.4 2.2 1.8 1.2 1.0 1.2 1.4 2.2 2.0 2.9
2.0 1.7 2.0 1.8 1.8 2.0 1.6 1.6 1.3 1.1 1.1 1.5 1.2 1.5 1.2 1.1 1.3 1.0 1.0 .9 .9 1.0 .9 .9 .9 .9 .9 .9 .9 1.1 1.1 1.1 1.1 1.0 1.2 2.1
1.5 1.4 1.7 2.0 2.2 1.9 1.8 2.1 1.9 1.6 1.7 2.1 1.9 2.2 1.9 1.7 1.6 1.5 1.3 1.3 1.3 1.3 1.3 1.1 1.1 1.1 1.0 1.0 1.0 1.0 1.0 1.2 1.2 1.1 1.5 1.7
1.4 1.4 1.3 1.5 1.5 1.4 1.6 1.7 1.7 1.5 1.8 2.0 1.9 1.7 1.7 1.9 1.7 1.6 1.6 1.8 1.8 1.7 1.6 1.5 1.5 1.4 1.4 1.3 1.5 1.4 1.4 1.3 1.2 1.2 1.4 1.6
1.3 1.2 1.3 1.3 1.4 1.3 1.3 1.4 1.6 1.6 1.6 1.9 1.7 1.6 1.4 1.4 1.6 1.8 1.6 1.6 1.7 1.7 1.6 1.6 1.6 1.6 1.7 1.6 1.5 1.4 1.5 1.5 1.5 1.4 1.3 1.3
1.6 1.4 1.4 1.5 1.5 1.7 1.7 1.7 1.6 1.7 1.6 2.1 2.4 1.9 1.8 1.8 1.5 1.5 1.5 1.5 1.6 1.7 1.9 1.8 1.7 2.1 2.2 2.2 1.9 1.7 1.6 1.7 1.6 1.6 1.6 1.6
1.9 1.8 1.9 2.2 2.3 2.2 2.2 2.2 2.3 2.3 2.4 2.7 2.4 2.5 2.4 2.2 1.8 1.7 1.7 1.8 1.8 1.8 2.4 2.1 2.5 3.0 2.8 2.6 2.2 1.5 1.3 1.4 1.5 1.6 1.6 1.6
2.2 2.2 2.5 2.6 2.5 2.5 2.4 2.4 2.2 2.1 2.3 2.1 1.9 1.6 1.4 1.5 1.4 1.6 1.5 1.4 1.4 1.4 1.5 1.9 1.9 1.9 1.8 1.7 1.9 1.5 1.5 1.7 1.9 2.0 2.0 2.0

Figure 49. ATOVS MEAN O-B brightness temperature differences (deg C). JULY 2005
Channel: AMSUA-5 (700 hPa)
NOAA16, using all observations

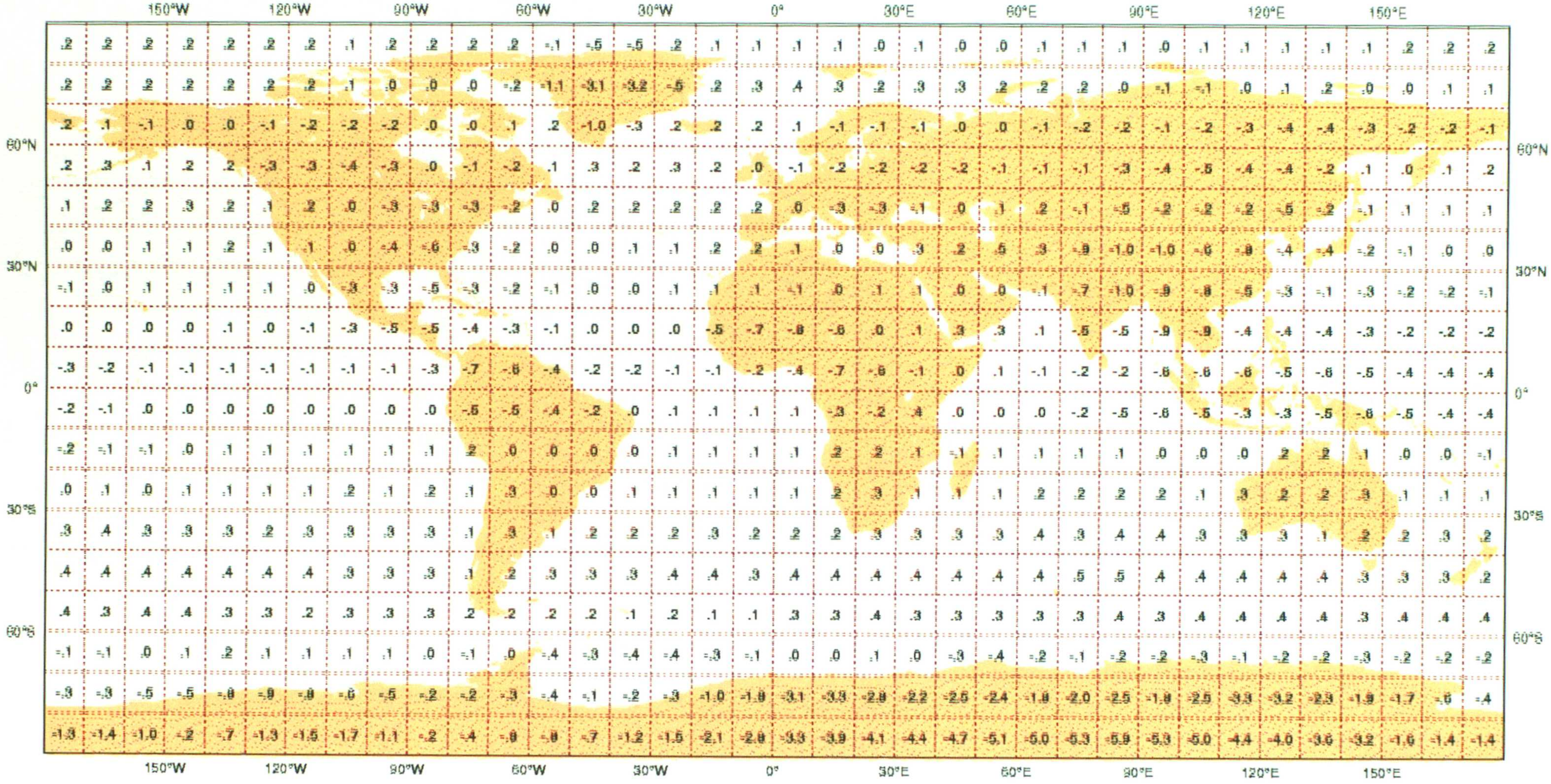

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
.2 .2 .2 .2 .2 .2 .2 .1 .2 .2 .2 .2 -.1 -.5 -.5 .2 .1 .1 .1 .1 .0 .1 .0 .0 .1 .1 .1 .0 .1 .1 .1 .1 .1 .2 .2 .2
.2 .2 .2 .2 .2 .2 .2 .1 .0 .0 .0 -.2 -1.1 -3.1 -3.2 -.5 .2 .3 .4 .3 .2 .3 .3 .2 .2 .2 .0 -.1 -.1 .0 .1 .2 .0 .0 .1 .1
.2 .1 -.1 .0 .0 -.1 -.2 -.2 -.2 .0 .0 .1 .2 -1.0 -.3 .2 .2 .2 .1 -.1 -.1 -.1 .0 .0 -.1 -.2 -.2 -.1 -.2 -.3 -.4 -.4 -.3 -.2 -.2 -.1
.2 .3 .1 .2 .2 -.3 -.3 -.4 -.3 .0 -.1 -.2 .1 .3 .2 .3 .2 .0 -.1 -.2 -.2 -.2 -.2 -.1 -.1 -.1 -.3 -.4 -.5 -.4 -.4 -.2 .1 .0 .1 .2
.1 .2 .2 .3 .2 .1 .2 .0 -.3 -.3 -.3 -.2 .0 .2 .2 .2 .2 .2 .0 -.3 -.3 -.1 .0 .1 .2 -.1 -.5 -.2 -.2 -.2 -.5 -.2 -.1 .1 .1 .1
.0 .0 .1 .1 .2 .1 .1 .0 -.4 -.6 -.3 -.2 .0 .0 .1 .1 .2 .2 .1 .0 .0 .3 .2 .5 .3 -.9 -1.0 -1.0 -.6 -.8 -.4 -.4 -.2 -.1 .0 .0
-.1 .0 .1 .1 .1 .1 .0 -.3 -.3 -.5 -.3 -.2 -.1 .0 .0 .1 .1 .1 -.1 .0 .1 .1 .0 .0 -.1 -.7 -1.0 -.9 -.8 -.5 -.3 -.1 -.3 -.2 -.2 -.1
.0 .0 .0 .0 .1 .0 -.1 -.3 -.5 -.5 -.4 -.3 -.1 .0 .0 .0 -.5 -.7 -.8 -.6 .0 .1 .3 .3 .1 -.5 -.5 -.9 -.9 -.4 -.4 -.4 -.3 -.2 -.2 -.2
-.3 -.2 -.1 -.1 -.1 -.1 -.1 -.1 -.1 -.3 -.7 -.6 -.4 -.2 -.2 -.1 -.1 -.2 -.4 -.7 -.6 -.1 .0 .1 -.1 -.2 -.2 -.6 -.6 -.6 -.5 -.6 -.5 -.4 -.4 -.4
-.2 -.1 .0 .0 .0 .0 .0 .0 .0 .0 -.5 -.5 -.4 -.2 .0 .1 .1 .1 .1 -.3 -.2 .4 .0 .0 .0 -.2 -.5 -.6 -.5 -.3 -.3 -.5 -.6 -.5 -.4 -.4
-.2 -.1 -.1 .0 .1 .1 .1 .1 .1 .1 .2 .0 .0 .0 .0 .1 .1 .1 .1 .2 .2 .1 -.1 .1 .1 .1 .1 .0 .0 .0 .2 .2 .1 .0 .0 -.1
.0 .1 .0 .1 .1 .1 .1 .2 .1 .2 .1 .3 .0 .0 .1 .1 .1 .1 .1 .2 .3 .1 .1 .1 .2 .2 .2 .2 .1 .3 .2 .2 .3 .1 .1 .1
.3 .4 .3 .3 .3 .2 .3 .3 .3 .3 .1 .3 .1 .2 .2 .2 .3 .2 .2 .2 .3 .3 .3 .3 .4 .3 .4 .4 .3 .3 .3 .1 .2 .2 .3 .2
.4 .4 .4 .4 .4 .4 .4 .3 .3 .3 .1 .2 .3 .3 .3 .4 .4 .3 .4 .4 .4 .4 .4 .4 .4 .5 .5 .4 .4 .4 .4 .4 .3 .3 .3 .2
.4 .3 .4 .4 .3 .3 .2 .3 .3 .3 .2 .2 .2 .2 .1 .2 .1 .1 .3 .3 .4 .3 .3 .3 .3 .3 .4 .3 .4 .4 .4 .4 .3 .4 .4 .4
-.1 -.1 .0 .1 .2 .1 .1 .1 .1 .0 -.1 .0 -.4 -.3 -.4 -.4 -.3 -.1 .0 .0 .1 .0 -.3 -.4 -.2 -.1 -.2 -.2 -.3 -.1 -.2 -.2 -.3 -.2 -.2 -.2
-.3 -.3 -.5 -.5 -.8 -.9 -.8 -.6 -.5 -.2 -.2 -.3 -.4 -.1 -.2 -.3 -1.0 -1.8 -3.1 -3.3 -2.8 -2.2 -2.5 -2.4 -1.8 -2.0 -2.5 -1.8 -2.5 -3.3 -3.2 -2.3 -1.9 -1.7 -.6 -.4
-1.3 -1.4 -1.0 -.2 -.7 -1.3 -1.5 -1.7 -1.1 -.2 -.4 -.8 -.8 -.7 -1.2 -1.5 -2.1 -2.8 -3.3 -3.9 -4.1 -4.4 -4.7 -5.1 -6.0 -6.3 -5.9 -5.3 -5.0 -4.4 -4.0 -3.6 -3.2 -1.6 -1.4 -1.4

Figure 50. ATOVS SD O-B brightness temperature differences (deg C). JULY 2005
Channel: AMSUA-5 (700 hPa)
NOAA16, using all observations

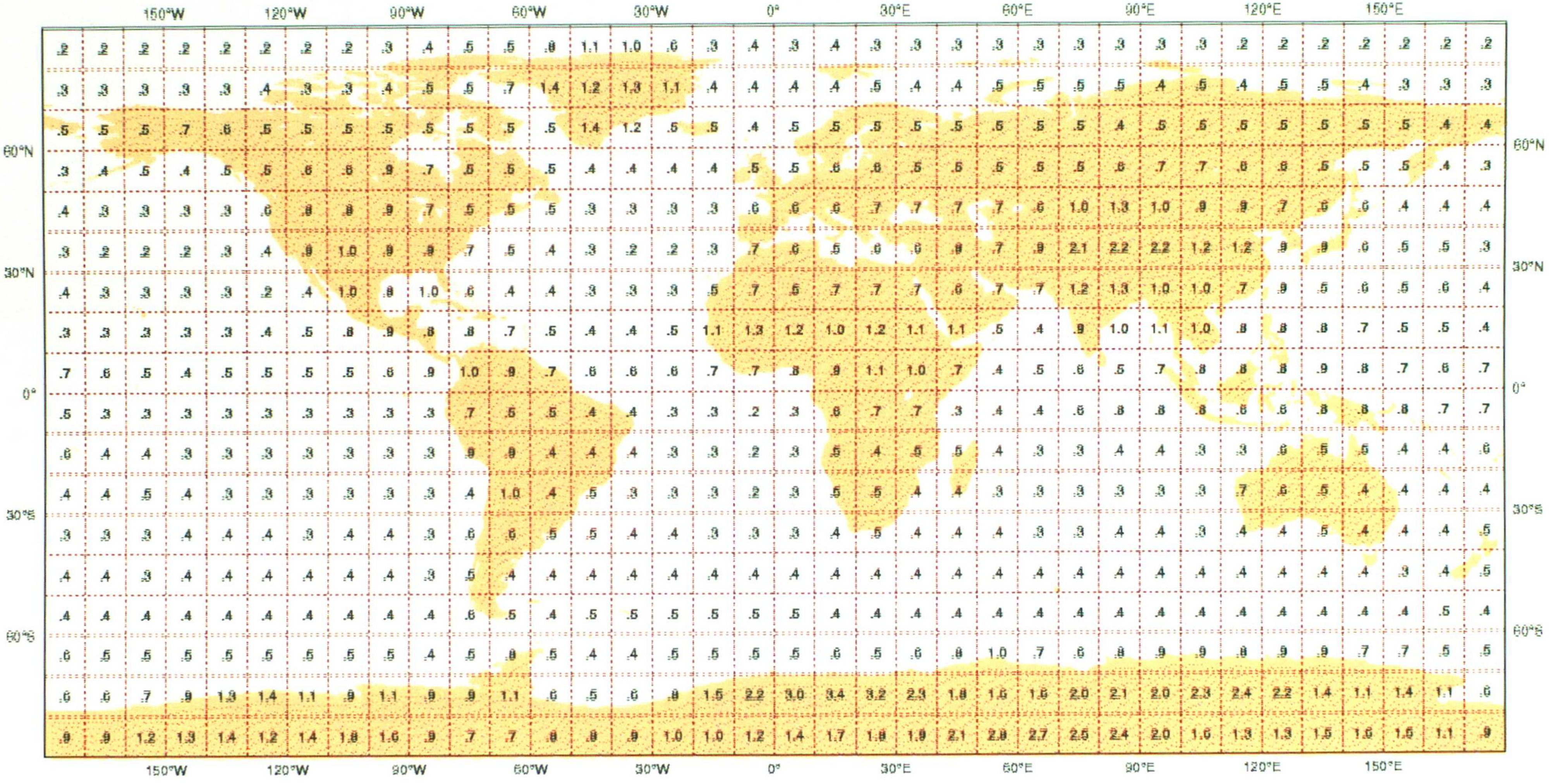
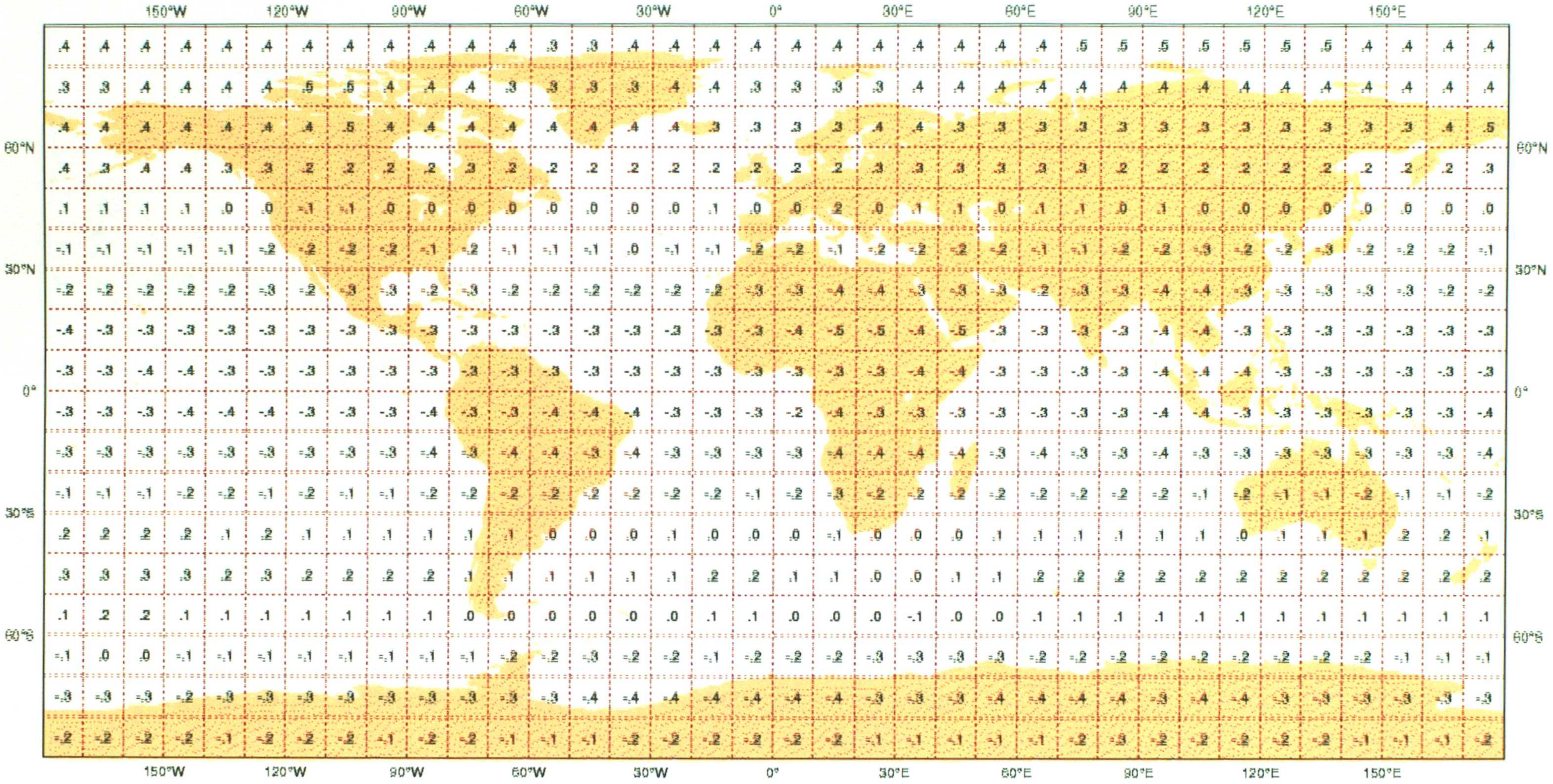
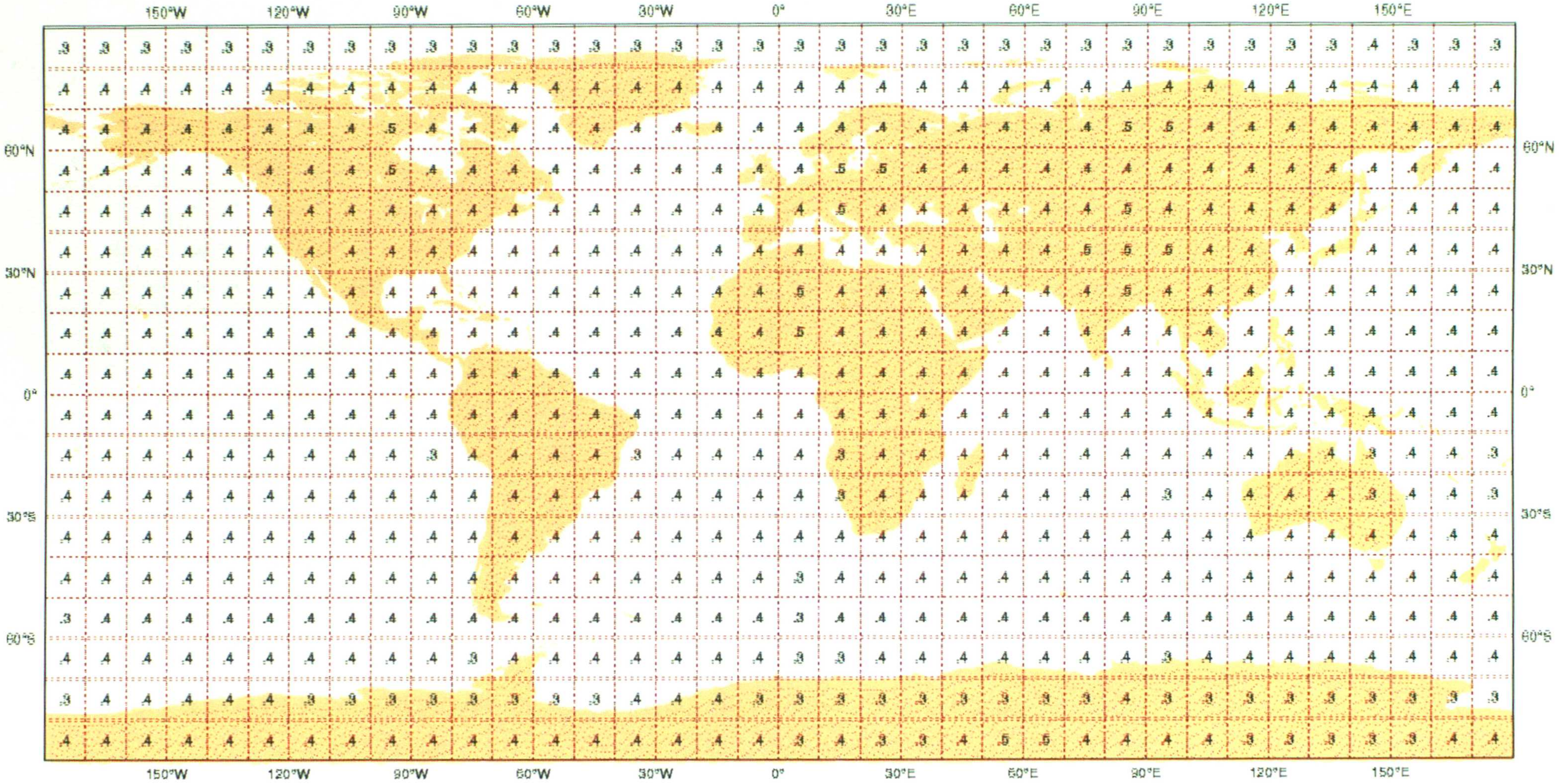

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
.2 .2 .2 .2 .2 .2 .2 .2 .3 .4 .5 .5 .8 1.1 1.0 .6 .3 .4 .3 .4 .3 .3 .3 .3 .3 .3 .3 .3 .3 .2 .2 .2 .2 .2 .2 .2
.3 .3 .3 .3 .3 .4 .3 .3 .4 .5 .6 .7 1.4 1.2 1.3 1.1 .4 .4 .4 .4 .5 .4 .4 .5 .5 .5 .5 .4 .5 .4 .5 .5 .4 .3 .3 .3
.5 .5 .5 .7 .6 .5 .5 .5 .5 .5 .5 .5 .5 1.4 1.2 .5 .5 .4 .5 .5 .5 .5 .5 .5 .5 .5 .4 .5 .5 .5 .5 .5 .5 .5 .4 .4
.3 .4 .5 .4 .5 .5 .6 .6 .9 .7 .5 .5 .5 .4 .4 .4 .4 .5 .5 .6 .8 .5 .5 .5 .5 .5 .6 .7 .7 .8 .8 .5 .5 .5 .4 .3
.4 .3 .3 .3 .3 .6 .8 .8 .9 .7 .5 .5 .5 .3 .3 .3 .3 .6 .6 .6 .7 .7 .7 .7 .6 1.0 1.3 1.0 .9 .9 .7 .6 .6 .4 .4 .4
.3 .2 .2 .2 .3 .4 .8 1.0 .9 .9 .7 .5 .4 .3 .2 .2 .3 .7 .6 .5 .6 .6 .8 .7 .9 2.1 2.2 2.2 1.2 1.2 .9 .9 .6 .5 .5 .3
.4 .3 .3 .3 .3 .2 .4 1.0 .8 1.0 .6 .4 .4 .3 .3 .3 .5 .7 .5 .7 .7 .7 .6 .7 .7 1.2 1.3 1.0 1.0 .7 .9 .5 .6 .5 .6 .4
.3 .3 .3 .3 .3 .4 .5 .8 .9 .8 .8 .7 .5 .4 .4 .5 1.1 1.3 1.2 1.0 1.2 1.1 1.1 .5 .4 .9 1.0 1.1 1.0 .8 .8 .8 .7 .5 .5 .4
.7 .6 .5 .4 .5 .5 .5 .5 .6 .9 1.0 .9 .7 .6 .6 .6 .7 .7 .8 .9 1.1 1.0 .7 .4 .5 .6 .5 .7 .8 .8 .8 .9 .8 .7 .6 .7
.5 .3 .3 .3 .3 .3 .3 .3 .3 .3 .7 .5 .5 .4 .4 .3 .3 .2 .3 .6 .7 .7 .3 .4 .4 .6 .8 .8 .8 .6 .6 .8 .8 .8 .7 .7
.6 .4 .4 .3 .3 .3 .3 .3 .3 .3 .9 .9 .4 .4 .4 .3 .3 .2 .3 .5 .4 .5 .5 .4 .3 .3 .4 .4 .3 .3 .6 .5 .5 .4 .4 .6
.4 .4 .5 .4 .3 .3 .3 .3 .3 .3 .4 1.0 .4 .5 .3 .3 .3 .2 .3 .5 .5 .4 .4 .3 .3 .3 .3 .3 .3 .7 .6 .5 .4 .4 .4 .4
.3 .3 .3 .4 .4 .4 .3 .4 .4 .3 .6 .6 .5 .5 .4 .4 .3 .3 .3 .4 .5 .4 .4 .4 .3 .3 .4 .4 .3 .4 .4 .5 .4 .4 .4 .5
.4 .4 .3 .4 .4 .4 .4 .4 .4 .3 .5 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .3 .4 .5
.4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .6 .5 .4 .5 .5 .5 .5 .5 .5 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .5 .4
.6 .5 .5 .5 .5 .5 .5 .5 .5 .4 .5 .8 .5 .4 .4 .5 .5 .5 .5 .6 .5 .6 .8 1.0 .7 .6 .8 .9 .9 .8 .9 .9 .7 .7 .5 .5
.6 .6 .7 .9 1.3 1.4 1.1 .9 1.1 .9 .9 1.1 .6 .5 .6 .8 1.5 2.2 3.0 3.4 3.2 2.3 1.8 1.6 1.6 2.0 2.1 2.0 2.3 2.4 2.2 1.4 1.1 1.4 1.1 .6
.9 .9 1.2 1.3 1.4 1.2 1.4 1.8 1.6 .9 .7 .7 .8 .8 .9 1.0 1.0 1.2 1.4 1.7 1.8 1.9 2.1 2.8 2.7 2.5 2.4 2.0 1.6 1.3 1.3 1.5 1.6 1.5 1.1 .9

Figure 51. ATOVS MEAN O-B brightness temperature differences (deg C). JULY 2005
Channel: AMSUA-7 (300 hPa)
NOAA16, using all observations



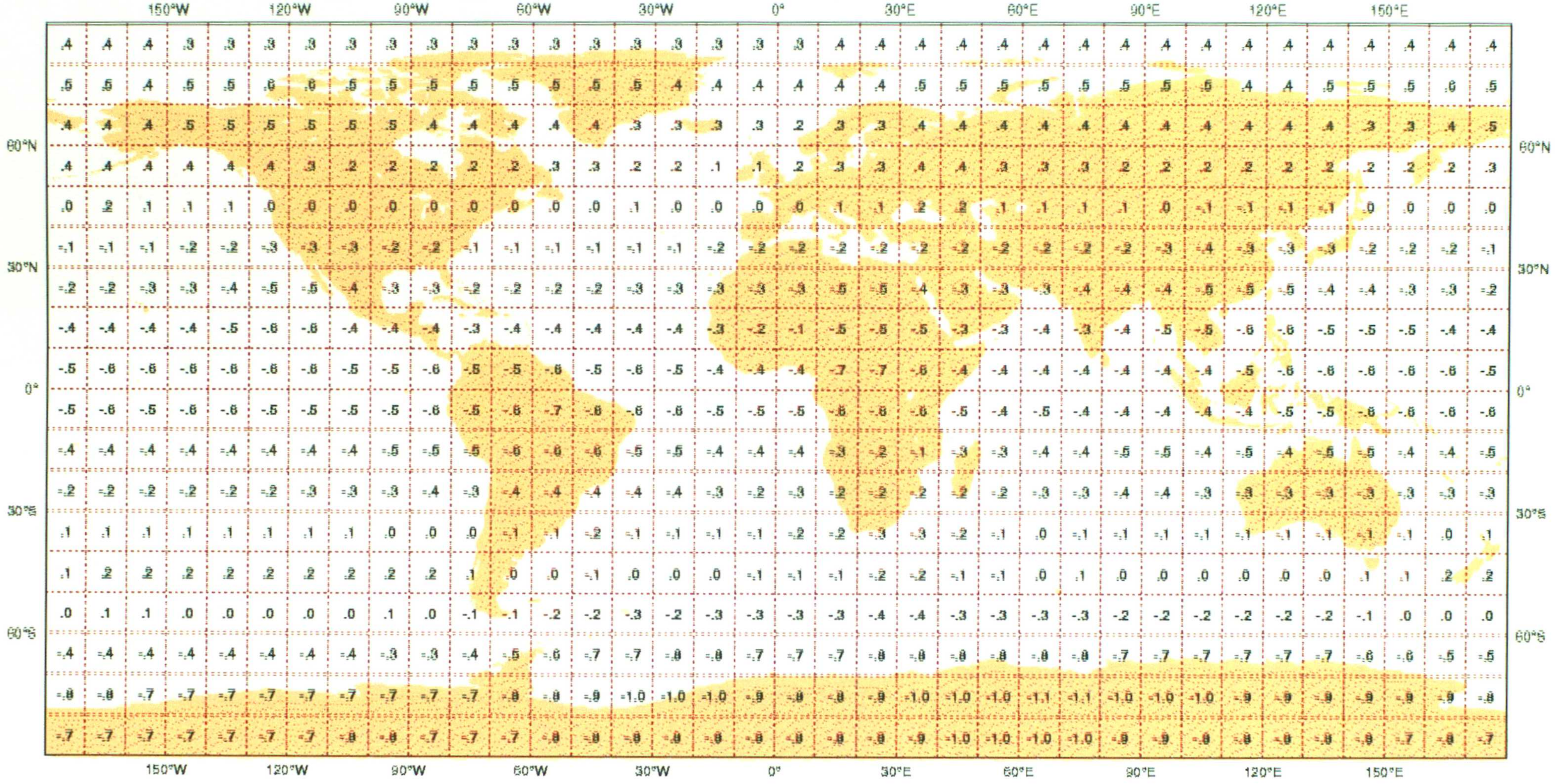
.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.3	.3	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.5	.5	.5	.5	.5	.5	.5	.4	.4	.4	.4
.3	.3	.4	.4	.4	.4	.5	.5	.4	.4	.4	.3	.3	.3	.3	.4	.4	.3	.3	.3	.3	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4
.4	.4	.4	.4	.4	.4	.4	.5	.4	.4	.4	.4	.4	.4	.4	.4	.3	.3	.3	.3	.4	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.5
.4	.3	.4	.4	.3	.3	.2	.2	.2	.2	.3	.2	.2	.2	.2	.2	.2	.2	.2	.2	.3	.3	.3	.3	.3	.3	.2	.2	.2	.2	.2	.2	.2	.2	.2	.3
.1	.1	.1	.1	.0	.0	-.1	-.1	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.2	.0	.1	.1	.0	.1	.1	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0
-.1	-.1	-.1	-.1	-.1	-.2	-.2	-.2	-.2	-.1	-.2	-.1	-.1	-.1	.0	-.1	-.1	-.2	-.2	-.1	-.2	-.2	-.2	-.2	-.1	-.1	-.2	-.2	-.3	-.2	-.2	-.3	-.2	-.2	-.2	-.1
-.2	-.2	-.2	-.2	-.2	-.3	-.2	-.3	-.3	-.2	-.3	-.2	-.2	-.2	-.2	-.2	-.2	-.3	-.3	-.4	-.4	-.3	-.3	-.3	-.2	-.3	-.3	-.4	-.4	-.3	-.3	-.3	-.3	-.3	-.2	-.2
-.4	-.3	-.3	-.3	-.3	-.3	-.3	-.3	-.3	-.3	-.3	-.3	-.3	-.3	-.3	-.3	-.3	-.3	-.4	-.5	-.5	-.4	-.5	-.3	-.3	-.3	-.3	-.4	-.4	-.3	-.3	-.3	-.3	-.3	-.3	-.3
-.3	-.3	-.4	-.4	-.3	-.3	-.3	-.3	-.3	-.3	-.3	-.3	-.3	-.3	-.3	-.3	-.3	-.3	-.3	-.3	-.3	-.4	-.4	-.3	-.3	-.3	-.3	-.4	-.4	-.4	-.3	-.3	-.3	-.3	-.3	-.3
-.3	-.3	-.3	-.4	-.4	-.4	-.3	-.3	-.3	-.4	-.3	-.3	-.4	-.4	-.4	-.3	-.3	-.3	-.2	-.4	-.3	-.3	-.3	-.3	-.3	-.3	-.3	-.4	-.4	-.3	-.3	-.3	-.3	-.3	-.3	-.4
-.3	-.3	-.3	-.3	-.3	-.3	-.3	-.3	-.3	-.4	-.3	-.4	-.4	-.3	-.4	-.3	-.3	-.3	-.3	-.4	-.4	-.4	-.4	-.3	-.4	-.3	-.3	-.4	-.3	-.3	-.3	-.3	-.3	-.3	-.3	-.4
-.1	-.1	-.1	-.2	-.2	-.1	-.2	-.1	-.1	-.2	-.2	-.2	-.2	-.2	-.2	-.2	-.2	-.1	-.2	-.3	-.2	-.2	-.2	-.2	-.2	-.2	-.2	-.2	-.1	-.2	-.1	-.1	-.2	-.1	-.1	-.2
.2	.2	.2	.2	.1	.2	.1	.1	.1	.1	.1	.1	.0	.0	.0	.1	.0	.0	.0	-.1	.0	.0	.0	.1	.1	.1	.1	.1	.1	.0	.1	.1	.1	.2	.2	.1
.3	.3	.3	.3	.2	.3	.2	.2	.2	.2	.1	.1	.1	.1	.1	.1	.2	.2	.1	.1	.0	.0	.1	.1	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2
.1	.2	.2	.1	.1	.1	.1	.1	.1	.1	.0	.0	.0	.0	.0	.0	.1	.1	.0	.0	.0	-.1	.0	.0	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
-.1	.0	.0	-.1	-.1	-.1	-.1	-.1	-.1	-.1	-.1	-.2	-.2	-.3	-.2	-.2	-.1	-.2	-.2	-.2	-.3	-.3	-.3	-.3	-.2	-.2	-.2	-.2	-.2	-.2	-.2	-.2	-.2	-.1	-.1	-.1
-.3	-.3	-.3	-.2	-.3	-.3	-.3	-.3	-.3	-.3	-.3	-.3	-.3	-.4	-.4	-.4	-.4	-.4	-.4	-.4	-.3	-.3	-.3	-.4	-.4	-.4	-.4	-.3	-.4	-.4	-.3	-.3	-.3	-.3	-.3	-.3
-.2	-.2	-.2	-.2	-.1	-.2	-.2	-.2	-.1	-.2	-.2	-.1	-.1	-.1	-.2	-.2	-.2	-.2	-.2	-.2	-.1	-.1	-.1	-.1	-.1	-.2	-.3	-.2	-.2	-.2	-.2	-.2	-.1	-.1	-.1	-.2

Figure 52. ATOVS SD O-B brightness temperature differences (deg C). JULY 2005
Channel: AMSUA-7 (300 hPa)
NOAA16, using all observations



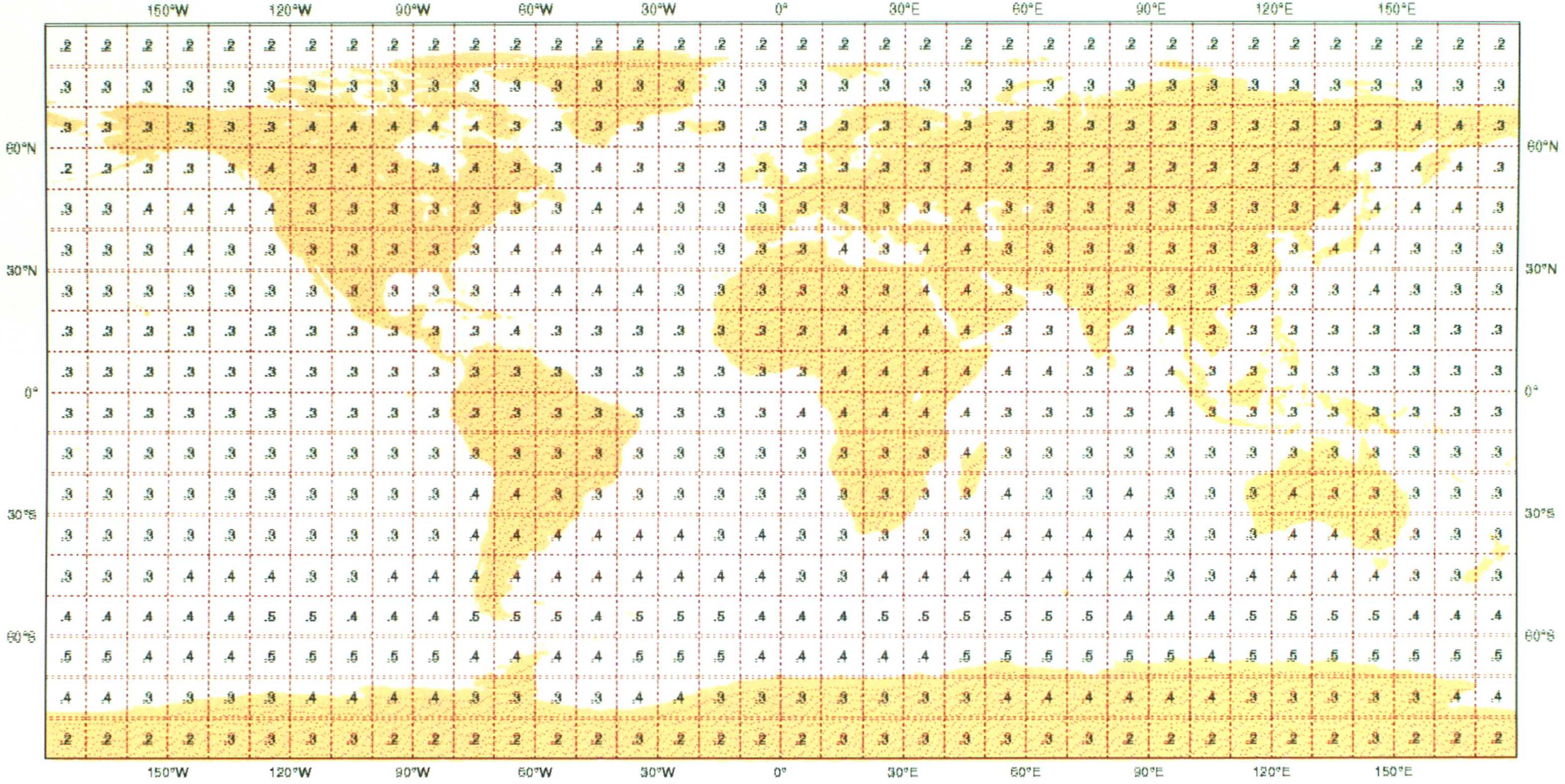
.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.3	.3	.3
.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4
.4	.4	.4	.4	.4	.4	.4	.4	.5	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.5	.5	.4	.4	.4	.4	.4	.4	.4	.4
.4	.4	.4	.4	.4	.4	.4	.4	.5	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.5	.5	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4
.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.5	.4	.4	.4	.4	.4	.4	.5	.4	.4	.4	.4	.4	.4	.4	.4	.4
.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.5	.5	.5	.4	.4	.4	.4	.4	.4	.4	.4
.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.5	.4	.4	.4	.4	.4	.4	.4	.5	.4	.4	.4	.4	.4	.4	.4	.4	.4
.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.5	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4
.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4
.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4
.4	.4	.4	.4	.4	.4	.4	.4	.4	.3	.4	.4	.4	.4	.3	.4	.4	.4	.4	.3	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.3	.4	.4	.3
.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.3	.4	.4	.4	.4	.4	.4	.4	.3	.4	.4	.4	.4	.3	.4	.4	.3
.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4
.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.3	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4
.3	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.3	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4
.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.3	.4	.4	.4	.4	.4	.4	.4	.3	.3	.4	.4	.4	.4	.4	.4	.4	.3	.4	.4	.4	.4	.4	.4	.4	.4
.3	.4	.4	.4	.4	.4	.3	.3	.3	.3	.3	.3	.3	.3	.4	.4	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3
.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.3	.4	.3	.3	.4	.5	.5	.4	.4	.4	.4	.3	.3	.3	.3	.3	.4	.4

Figure 53. ATOVS MEAN O-B brightness temperature differences (deg C). JULY 2005
Channel: AMSUA-9 (100 hPa)
NOAA16, using all observations



.4	.4	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4
.5	.5	.4	.5	.5	.6	.6	.5	.5	.5	.5	.5	.5	.5	.5	.4	.4	.4	.4	.4	.4	.5	.5	.5	.5	.5	.5	.5	.5	.4	.4	.5	.5	.5	.6	.5
.4	.4	.4	.5	.5	.5	.5	.5	.5	.4	.4	.4	.4	.4	.3	.3	.3	.3	.2	.3	.3	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.3	.3	.4	.5
.4	.4	.4	.4	.4	.4	.3	.2	.2	.2	.2	.2	.3	.3	.2	.2	.1	.1	.2	.3	.3	.4	.4	.3	.3	.3	.2	.2	.2	.2	.2	.2	.2	.2	.2	.3
.0	.2	.1	.1	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1	.1	.2	.2	.1	.1	.1	.1	.0	-.1	-.1	-.1	-.1	.0	.0	.0	.0
-.1	-.1	-.1	-.2	-.2	-.3	-.3	-.3	-.2	-.2	-.1	-.1	-.1	-.1	-.1	-.1	-.2	-.2	-.2	-.2	-.2	-.2	-.2	-.2	-.2	-.2	-.2	-.3	-.4	-.3	-.3	-.3	-.2	-.2	-.2	-.1
-.2	-.2	-.3	-.3	-.4	-.5	-.5	-.4	-.3	-.3	-.2	-.2	-.2	-.2	-.3	-.3	-.3	-.3	-.3	-.5	-.5	-.4	-.3	-.3	-.3	-.4	-.4	-.4	-.5	-.5	-.5	-.4	-.4	-.3	-.3	-.2
-.4	-.4	-.4	-.4	-.5	-.6	-.6	-.4	-.4	-.4	-.3	-.4	-.4	-.4	-.4	-.4	-.3	-.2	-.1	-.5	-.5	-.5	-.3	-.3	-.4	-.3	-.4	-.5	-.5	-.6	-.6	-.5	-.5	-.5	-.4	-.4
-.5	-.6	-.6	-.6	-.6	-.6	-.6	-.5	-.5	-.6	-.5	-.5	-.6	-.5	-.6	-.5	-.4	-.4	-.4	-.7	-.7	-.6	-.4	-.4	-.4	-.4	-.4	-.4	-.4	-.5	-.6	-.6	-.6	-.6	-.6	-.5
-.5	-.6	-.5	-.6	-.6	-.5	-.5	-.5	-.5	-.6	-.5	-.6	-.7	-.6	-.6	-.6	-.5	-.5	-.5	-.6	-.6	-.6	-.5	-.4	-.5	-.4	-.4	-.4	-.4	-.4	-.5	-.5	-.6	-.6	-.6	-.6
-.4	-.4	-.4	-.4	-.4	-.4	-.4	-.4	-.5	-.5	-.5	-.6	-.6	-.6	-.5	-.5	-.4	-.4	-.4	-.3	-.2	-.1	-.3	-.3	-.4	-.4	-.5	-.5	-.4	-.5	-.4	-.5	-.5	-.4	-.4	-.5
-.2	-.2	-.2	-.2	-.2	-.2	-.3	-.3	-.3	-.4	-.3	-.4	-.4	-.4	-.4	-.4	-.3	-.2	-.3	-.2	-.2	-.2	-.2	-.2	-.3	-.3	-.4	-.4	-.3	-.3	-.3	-.3	-.3	-.3	-.3	-.3
.1	.1	.1	.1	.1	.1	.1	.1	.0	.0	.0	-.1	-.1	-.2	-.1	-.1	-.1	-.1	-.2	-.2	-.3	-.3	-.2	-.1	.0	-.1	-.1	-.1	-.1	-.1	-.1	-.1	-.1	-.1	.0	.1
.1	.2	.2	.2	.2	.2	.2	.2	.2	.2	.1	.0	.0	-.1	.0	.0	.0	-.1	-.1	-.1	-.2	-.2	-.1	-.1	.0	.1	.0	.0	.0	.0	.0	.0	.1	.1	.2	.2
.0	.1	.1	.0	.0	.0	.0	.0	.1	.0	-.1	-.1	-.2	-.2	-.3	-.2	-.3	-.3	-.3	-.3	-.4	-.4	-.3	-.3	-.3	-.3	-.2	-.2	-.2	-.2	-.2	-.2	-.1	.0	.0	.0
-.4	-.4	-.4	-.4	-.4	-.4	-.4	-.4	-.3	-.3	-.4	-.5	-.6	-.7	-.7	-.8	-.8	-.7	-.7	-.7	-.8	-.8	-.8	-.8	-.8	-.8	-.7	-.7	-.7	-.7	-.7	-.7	-.6	-.6	-.5	-.5
-.8	-.8	-.7	-.7	-.7	-.7	-.7	-.7	-.7	-.7	-.7	-.8	-.8	-.9	-1.0	-1.0	-1.0	-.9	-.8	-.8	-.9	-1.0	-1.0	-1.0	-1.1	-1.1	-1.0	-1.0	-1.0	-.9	-.9	-.9	-.9	-.9	-.9	-.8
-.7	-.7	-.7	-.7	-.7	-.7	-.7	-.8	-.8	-.7	-.7	-.7	-.8	-.8	-.8	-.8	-.8	-.8	-.8	-.8	-.8	-.9	-1.0	-1.0	-1.0	-1.0	-.9	-.9	-.8	-.8	-.8	-.8	-.8	-.7	-.8	-.7

Figure 54. ATOVS SD O-B brightness temperature differences (deg C). JULY 2005
Channel: AMSUA-9 (100 hPa)
NOAA16, using all observations



.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2
.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
.3	.3	.3	.3	.3	.3	.4	.4	.4	.4	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.4	.3
.2	.3	.3	.3	.3	.4	.3	.4	.3	.3	.4	.3	.3	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.3	.4	.4	.3
.3	.3	.4	.4	.4	.4	.3	.3	.3	.3	.3	.3	.3	.4	.4	.3	.3	.3	.3	.3	.3	.3	.4	.3	.3	.3	.3	.3	.3	.3	.3	.4	.4	.4	.4	.3
.3	.3	.3	.4	.3	.3	.3	.3	.3	.3	.3	.4	.4	.4	.4	.3	.3	.3	.3	.4	.3	.4	.4	.3	.3	.3	.3	.3	.3	.3	.3	.4	.4	.3	.3	.3
.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.4	.4	.4	.3	.3	.3	.3	.3	.3	.4	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.3	.3	.3
.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.3	.3	.3	.3	.3	.3	.3	.4	.4	.4	.4	.3	.3	.3	.3	.4	.3	.3	.3	.3	.3	.3	.3	.3
.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.4	.4	.4	.4	.4	.3	.3	.4	.3	.3	.3	.3	.3	.3	.3	.3
.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.4	.4	.4	.4	.3	.3	.3	.3	.4	.3	.3	.3	.3	.3	.3	.3	.3
.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.3	.3	.4	.3	.3	.3	.4	.3	.3	.3	.3	.3
.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.4	.4	.4	.4	.4	.3	.4	.3	.3	.3	.3	.3	.4	.4	.4	.4	.3	.3	.3	.4	.4	.3	.3	.3	.3
.3	.3	.3	.4	.4	.4	.3	.3	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.3	.3	.4	.4	.4	.4	.4	.4	.4	.3	.3	.4	.4	.4	.4	.3	.3	.3
.4	.4	.4	.4	.4	.5	.5	.4	.4	.4	.5	.5	.5	.4	.5	.5	.5	.4	.4	.4	.5	.5	.5	.5	.5	.5	.4	.4	.4	.5	.5	.5	.5	.4	.4	.4
.5	.5	.4	.4	.4	.5	.5	.5	.5	.5	.4	.4	.4	.4	.5	.5	.5	.4	.4	.4	.4	.4	.5	.5	.5	.5	.5	.5	.4	.5	.5	.5	.5	.5	.5	.5
.4	.4	.3	.3	.3	.3	.4	.4	.4	.4	.3	.3	.3	.3	.4	.4	.3	.3	.3	.3	.3	.3	.3	.4	.4	.4	.4	.4	.4	.3	.3	.3	.3	.3	.4	.4
.2	.2	.2	.2	.3	.3	.3	.3	.2	.2	.2	.2	.2	.2	.3	.2	.2	.2	.2	.3	.3	.3	.3	.3	.3	.3	.2	.2	.2	.2	.2	.2	.3	.2	.2	.2

TABLE 8

MONTHLY MONITORING OF MARINE SURFACE OBSERVATIONS (COSNA)
DATA TYPE:- DRIFTER
MONITORING CENTRE: EXETER
MONTH: July 2005

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for drifting buoy.
Area monitored		:10°N - 80°N, 85°W - 0°W
Standard of comparison		:Background field from UKMO global model.
Position		:Average latitude and longitude for period.
Observation times		:All hours combined.
Elements monitored		:Mean sea-level pressure (hPa) :Wind speed (m s^{-1}) :Wind direction (degrees)
Parameters monitored		
	:NOBS	:Number of observations received excluding duplicates.
	:NGE	:Number of observations with gross errors.
	:PGE	:Percentage of observations with gross errors.
	:SD	:SD of difference of observations from background values excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors. **N.B. A positive bias indicates the wind observation is veered to the background**
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors
GROSS ERROR LIMITS	:15 hPa (pressure) :25 m s^{-1} (Vector Wind)	

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 m s^{-1}

IDENTIFIER	LAT.	LONG.	ELEM	NOBS	PGE	%REJ	SD	BIAS	RMS
13534	33.0	-26.3	P	1083	0	34	0.3	-0.4	0.5
41501	11.2	-46.6	P	577	1	9	0.6	0.3	0.6
41502	15.4	-46.6	P	589	0	10	0.4	1.0	1.1
41505	16.1	-50.2	P	532	0	11	0.4	0.4	0.6
41525	27.3	-73.2	P	460	0	9	0.7	0.5	0.9
41528	27.2	-75.7	P	472	0	12	0.7	0.7	1.0
41539	25.7	-71.8	P	779	0	9	0.6	1.8	1.9
41540	41.5	-44.4	P	792	0	11	0.6	0.8	1.0
41542	26.0	-72.3	P	765	0	8	0.7	1.3	1.4
41543	26.6	-60.9	P	776	0	8	0.5	0.3	0.6
41544	20.8	-60.6	P	775	0	10	0.5	0.7	0.9
41545	26.2	-66.3	P	786	0	9	0.5	1.2	1.3
41625	26.4	-72.8	P	438	0	9	0.6	0.6	0.9
41630	24.3	-73.9	P	473	1	10	0.6	0.3	0.7
41643	21.2	-68.6	P	464	0	10	0.6	0.5	0.8
41645	23.5	-68.4	P	634	0	35	0.6	0.5	0.8
41646	23.8	-70.6	P	433	0	9	0.7	0.5	0.8
41663	17.3	-62.7	P	1753	0	100	0.6	-2.2	2.3
41927	27.3	-68.3	P	717	1	40	0.7	0.0	0.7
41929	32.6	-66.1	P	838	0	46	0.9	0.6	1.1
41931	35.5	-69.4	P	719	1	41	1.2	0.3	1.3
41934	29.2	-71.9	P	819	0	44	0.8	-0.4	0.9
41935	29.2	-72.5	P	730	1	40	0.8	0.1	0.8
41939	35.6	-48.4	P	775	1	100	0.9	-2.1	2.3
44549	54.1	-26.4	P	667	0	5	0.4	0.0	0.4
44550	49.2	-31.7	P	658	0	5	0.4	0.0	0.4
44607	39.9	-36.1	P	742	0	4	0.4	-0.1	0.4
44608	39.8	-32.9	P	750	0	6	0.4	-0.2	0.4
44609	48.8	-25.6	P	678	0	11	0.4	-0.2	0.4
44610	53.4	-38.4	P	741	0	4	0.5	-0.3	0.6
44611	53.4	-27.9	P	728	0	3	0.6	-0.3	0.6
44612	60.3	-16.1	P	689	0	3	0.5	0.0	0.5
44615	45.6	-49.1	P	746	0	4	0.6	-0.1	0.6
44628	28.8	-31.7	P	833	0	20	0.3	-0.3	0.5
44635	43.5	-51.1	P	350	0	15	0.7	0.5	0.9
44636	43.9	-60.1	P	468	0	17	0.5	0.0	0.5
44637	43.7	-60.9	P	505	0	20	0.5	0.3	0.6
44722	47.1	-27.8	P	693	0	2	0.6	-0.2	0.6
44723	59.4	-41.6	P	744	0	4	0.8	-0.4	0.9
44725	55.1	-44.9	P	746	0	4	0.7	0.4	0.8
44726	50.4	-47.3	P	742	0	4	0.7	-0.2	0.7
44727	45.8	-36.0	P	735	0	4	0.5	0.0	0.5
44728	50.9	-29.5	P	736	0	4	0.4	0.4	0.6
44729	46.4	-55.4	P	745	0	4	0.7	-0.8	1.1
44743	39.9	-12.9	P	638	0	3	0.4	0.3	0.5
44775	58.5	-17.6	P	1021	0	59	0.5	-0.1	0.5
44831	53.0	-44.7	P	827	0	13	0.6	-0.2	0.6
44832	56.0	-40.5	P	835	0	13	0.5	-0.2	0.6
44833	44.6	-62.0	P	811	0	12	0.5	0.1	0.5
44842	61.5	-26.7	P	844	0	15	0.5	-0.2	0.5
44843	64.2	-30.2	P	952	0	25	0.7	-0.3	0.8
44844	55.8	-34.3	P	842	0	15	0.5	0.0	0.5
44845	43.6	-50.3	P	891	0	19	0.6	0.0	0.6
44846	43.2	-31.8	P	811	0	12	0.6	-0.2	0.6
44847	41.4	-34.4	P	802	0	12	0.3	-0.1	0.4
44848	40.8	-39.1	P	813	0	12	0.6	0.0	0.6
44849	42.3	-47.5	P	266	0	20	0.7	0.1	0.7
44850	44.0	-40.5	P	187	0	16	0.4	-0.1	0.4
44901	42.9	-42.1	P	162	0	18	0.5	0.0	0.5
62501	44.5	-11.0	P	665	0	2	0.5	-0.3	0.5

IDENTIFIER	LAT.	LONG.	ELEM	NOBS	PGE	%REJ	SD	BIAS	RMS
62502	46.6	-5.5	P	636	0	1	0.4	0.1	0.4
62503	46.2	-5.2	P	646	0	2	0.4	0.0	0.4
62504	47.2	-8.3	P	667	0	6	1.0	0.1	1.0
62505	44.8	-7.7	P	357	0	9	0.8	0.2	0.9
62510	35.7	-23.1	P	747	0	5	0.3	-0.1	0.3
62511	46.7	-11.3	P	679	0	3	0.5	0.3	0.6
62514	63.8	-39.8	P	737	0	4	1.0	-0.4	1.1
62515	44.9	-6.5	P	664	0	4	0.4	-0.4	0.6
62556	29.8	-24.3	P	724	0	4	0.3	-0.1	0.3
62557	30.1	-21.3	P	1034	0	32	0.3	-0.1	0.3
62560	43.3	-18.2	P	986	0	36	0.5	0.5	0.7
62562	47.8	-16.7	P	663	0	7	0.5	0.7	0.9
62563	55.4	-6.7	P	733	0	4	0.5	-0.3	0.5
62564	42.9	-23.8	P	744	0	4	0.6	0.3	0.7
62566	57.7	-15.8	P	736	0	4	0.5	-0.1	0.5
62567	43.3	-13.9	P	676	0	2	0.5	-0.4	0.6
62901	53.5	-16.9	P	829	0	14	0.5	-0.2	0.5
62907	44.5	-6.5	P	183	0	4	0.4	-0.2	0.5
62908	45.4	-3.2	P	180	0	3	0.5	-0.1	0.5
62909	46.8	-5.9	P	107	0	7	0.7	-0.2	0.8
62910	43.7	-5.5	P	148	0	3	0.7	-0.1	0.7
62926	45.1	-6.1	P	228	0	9	0.4	-0.2	0.5
62927	46.3	-7.2	P	43	0	0	0.4	-0.3	0.5
62928	46.6	-5.8	P	146	0	7	0.4	-0.2	0.5
62929	44.5	-4.0	P	145	0	4	0.4	-0.4	0.6
62930	45.3	-8.0	P	187	0	5	0.5	-0.1	0.5
62931	44.2	-5.9	P	324	0	8	0.5	-0.5	0.7
62932	46.4	-6.7	P	184	0	4	0.4	-0.4	0.5
62934	49.6	-16.7	P	820	0	14	0.5	-0.2	0.5
62936	47.9	-26.1	P	239	0	17	0.3	0.0	0.3
64609	62.4	-36.9	P	739	0	3	0.7	-0.2	0.7
64612	60.9	-24.8	P	745	0	4	0.5	-1.0	1.1
64929	60.0	-30.4	P	827	0	14	0.5	0.0	0.5

IDENTIFIER	LAT.	LONG.	ELEM	NOBS	PGE	%REJ	SD	BIAS	RMS
41525	27.3	-73.2	SPEED	451	0	100	2.2	0.7	2.3
41528	27.2	-75.7	SPEED	464	0	100	3.1	2.0	3.7
41542	26.0	-72.3	SPEED	738	0	100	1.3	-1.2	1.8
41543	26.6	-60.9	SPEED	601	0	100	1.4	-2.3	2.7
41544	20.8	-60.6	SPEED	758	0	100	1.4	-1.7	2.2
41545	26.2	-66.3	SPEED	188	0	100	1.2	-2.2	2.6
41625	26.4	-72.8	SPEED	430	0	100	2.2	2.4	3.2
41630	24.3	-73.9	SPEED	464	0	100	3.0	0.3	3.0
41643	21.2	-68.6	SPEED	453	0	100	2.8	1.9	3.4
41645	23.5	-68.4	SPEED	626	0	100	2.6	1.6	3.0
41646	23.8	-70.6	SPEED	427	0	100	2.2	1.0	2.4
41927	27.3	-68.3	SPEED	10	20	100	10.8	4.9	11.8
41929	32.6	-66.1	SPEED	112	4	100	2.3	2.8	3.6
41931	35.5	-69.4	SPEED	12	50	100	3.9	14.9	15.4
41934	29.2	-71.9	SPEED	13	69	100	9.8	7.6	12.4
41935	29.2	-72.5	SPEED	6	67	100	0.2	9.0	9.0
41939	35.6	-48.4	SPEED	9	56	100	3.3	-0.2	3.3
62566	57.7	-15.8	SPEED	619	0	100	1.9	-1.1	2.2

IDENTIFIER	LAT.	LONG.	ELEM	NOBS	PGE	%REJ	SD	BIAS	RMS
41525	27.3	-73.2	DIRN.	236	0	0	21.6	19.9	29.4
41528	27.2	-75.7	DIRN.	244	0	0	19.0	1.0	19.0
41542	26.0	-72.3	DIRN.	362	0	0	18.1	17.4	25.1
41544	20.8	-60.6	DIRN.	476	0	0	15.7	4.7	16.4
41625	26.4	-72.8	DIRN.	285	0	0	15.6	18.0	23.9

41630	24.3	-73.9	DIRN.	306	1	0	32.4	3.7	32.6
41643	21.2	-68.6	DIRN.	394	0	0	23.2	39.6	45.9
41645	23.5	-68.4	DIRN.	515	0	0	26.3	9.0	27.8
41646	23.8	-70.6	DIRN.	349	0	0	16.7	7.3	18.2
41927	27.3	-68.3	DIRN.	4	50	0	79.2	-76.2	109.9
41929	32.6	-66.1	DIRN.	6	67	0	67.8	108.1	127.6
41931	35.5	-69.4	DIRN.	9	67	0	129.2	-77.2	150.5
41934	29.2	-71.9	DIRN.	10	90	0	0.0	*****	138.2
41935	29.2	-72.5	DIRN.	4	100	0			
41939	35.6	-48.4	DIRN.	8	63	0	44.1	91.1	101.3
62566	57.7	-15.8	DIRN.	490	0	0	20.2	4.9	20.8

TABLE 9

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS (COSNA)
MONITORING CENTRE: EXETER
MONTH: July 2005

Monitoring procedures:

Period :One calendar month.

Data monitored :Statistics for each airline carrier.

Area monitored :40°N - 70°N, 60°W - 0°W.

Standard of comparison :Background field from UKMO global model.

Observation times :All hours combined.

Level(s) monitored :300.0 - 150.0 hPa

Elements monitored :TEMP in °C ; WIND in m s^{-1}

Parameters monitored :N REP. :Number of observations received excluding duplicates.

:PG :Percentage of observations with gross errors.

:PR :Percentage of observations rejected by quality control including rejections from the duplicate check.

:PC :Percentage of observations with calm winds.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.

:BIAS :Mean difference of observations from background values excluding those with gross errors in Temperature & vector wind.

GROSS ERROR LIMITS :10.0 °C ; 60 m s^{-1} Vector Wind

SELECTION CRITERIA :N REP $\geq$ 20

NB: All American ACARS data are grouped together and statistics are shown at the bottom of the table as "US ACARS". All ADS reports are similarly grouped together.

		TEMPERATURE						WIND			
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AAL	3945	0	4	1.3	0.1	3546	0	4	0	5.0	0.8
ABD	49	0	6	1.0	-0.5	55	0	11	0	7.6	1.0
ACA	2262	0	3	1.5	-0.3	1674	0	3	0	5.4	0.6
AEA	514	1	3	1.4	0.2	420	0	2	0	6.2	1.2
AFL	570	0	1	1.6	0.4	317	0	2	0	6.3	0.0
AFR	3799	0	3	1.3	0.1	3698	0	3	0	4.7	0.6
AJM	156	0	1	1.0	-0.5	126	0	3	0	7.5	0.2
AMT	44	0	11	1.6	0.7	47	0	17	0	11.3	1.8
AMX	411	0	2	1.6	0.0	368	0	3	0	7.5	0.7
ANZ	96	0	40	1.4	-0.4	93	0	39	0	4.6	-0.4
AUA	358	0	4	1.4	0.4	345	0	2	0	4.4	0.6
AVA	41	0	0	0.8	0.2	41	0	5	0	11.0	0.8
AZA	407	0	2	1.4	0.0	305	0	4	0	7.0	0.5
BAL	312	0	7	1.2	0.0	299	0	10	0	6.9	-0.1
BAW	2223	0	7	1.5	0.0	1974	3	28	0	20.0	0.4
BHP	26	0	4	1.9	-1.3	23	0	4	0	9.4	0.6
BMA	313	0	4	1.4	-0.1	232	0	3	0	4.9	0.6
BPA	372	1	10	1.1	0.1	379	0	11	0	7.6	0.1
BSK	35	0	0	1.2	0.2	23	0	4	0	12.3	-1.2
BWA	195	0	4	1.4	-0.3	168	0	6	0	6.4	0.2
CFG	552	1	4	1.5	0.0	446	0	2	0	6.0	-0.1
CKS	121	0	7	2.2	0.9	86	0	12	0	12.1	-1.3
CLX	245	0	1	1.7	0.0	135	0	3	0	6.1	-0.6
CNJ	33	0	36	1.1	0.8	33	0	36	0	4.6	-0.9
COA	3598	0	8	1.2	0.0	3391	0	6	0	4.5	0.6
CRL	378	0	4	1.6	0.0	354	0	5	0	5.5	0.0
CSD	35	0	0	1.6	0.9	20	0	0	0	5.2	0.5
CUB	136	0	1	1.3	-1.1	107	0	3	0	8.1	0.3
DAL	942	0	5	1.3	0.1	863	0	5	0	4.9	0.8
DLH	4321	0	6	1.2	0.1	4232	0	6	0	4.8	0.6
DRD	114	1	2	1.2	-0.4	111	2	4	0	5.6	1.0
EDW	73	0	3	1.2	-0.4	54	0	4	0	6.1	1.2
EEZ	155	0	12	1.7	-0.1	141	0	11	0	5.2	0.2
EIA	118	0	9	1.2	0.1	110	0	100	0	22.7	7.2
ELY	399	0	1	1.1	0.1	370	0	1	0	4.3	0.2
ETH	33	0	6	0.7	-0.1	34	0	6	0	3.7	0.2
EUK	51	2	6	1.5	0.0	39	0	5	0	7.3	1.7
FCA	163	0	10	2.3	0.5	130	1	5	0	7.9	0.8
FDX	708	0	36	1.2	0.2	489	0	35	0	8.5	0.8
FIN	536	0	4	1.5	0.2	436	0	4	0	6.1	0.5
FWI	283	0	3	1.3	-0.4	284	0	3	0	5.7	0.3
GAF	63	0	13	1.8	-0.6	37	0	11	0	4.6	0.9
GCO	112	0	11	1.3	0.0	113	2	100	0	12.3	2.0
GRL	131	0	4	1.7	0.5	122	1	3	0	7.1	0.7
GTI	187	0	53	1.5	0.1	158	0	12	0	8.4	-0.6
IBE	1813	0	7	1.4	0.2	1803	0	8	0	7.0	0.7
ICE	1264	0	3	1.7	-0.2	763	0	2	0	6.2	0.6
ISR	76	1	5	1.7	-0.4	45	0	4	0	9.5	-0.9
IWD	259	0	2	1.3	-0.1	258	0	3	0	6.0	0.7
KAC	121	0	7	1.1	0.4	118	0	7	0	4.0	0.7
KLM	1028	0	2	1.4	0.0	817	0	3	0	6.5	0.5
LAN	40	0	10	2.3	0.1	40	0	10	0	9.1	-0.7
LDI	304	0	3	1.3	0.1	263	0	2	0	4.5	0.8
LOT	612	0	3	1.8	-0.2	395	0	4	0	7.7	0.4
LTU	725	0	6	1.4	0.0	593	0	6	0	6.5	0.8
MON	55	0	2	1.1	-0.4	30	0	10	0	7.7	1.5
MPD	222	2	3	1.3	0.0	185	0	4	0	7.4	1.7
MPH	443	0	2	1.7	-0.9	289	0	2	0	6.3	0.7
MSR	113	0	1	1.4	0.7	110	0	1	0	3.9	0.8

		TEMPERATURE				WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
MYT	349	0	2	1.3	-0.2	238	0	1	0	5.4	0.6
NAO	46	0	2	1.6	0.7	41	0	2	0	5.7	-0.1
NCA	28	0	0	1.2	0.2	25	0	4	0	11.8	0.6
NOS	28	0	4	0.8	-0.1	20	0	0	0	6.8	-1.5
NWA	3008	1	4	1.7	0.4	2892	0	4	0	7.3	0.3
OAE	187	1	5	1.7	-0.1	119	1	10	0	11.5	2.4
OOM	126	0	4	2.0	-0.7	103	0	1	0	5.5	0.6
PAC	193	5	14	1.6	-0.2	161	0	13	0	8.1	0.3
PLM	142	0	2	1.9	1.0	134	0	4	0	7.5	0.7
RAM	362	0	2	1.4	0.4	270	0	5	0	8.3	0.1
RCH	225	0	100	3.6	-1.3	177	0	100	0	10.7	1.5
RJA	38	0	3	1.2	-0.7	26	0	4	0	5.7	0.8
RRR	99	0	8	1.4	-0.2	103	0	10	0	7.2	0.6
RYN	51	0	10	1.6	0.4	48	0	10	0	6.3	0.4
RZO	427	1	6	2.3	0.5	345	0	2	0	5.8	1.0
SAS	727	0	42	1.2	-0.1	704	0	42	0	4.4	0.8
SCY	32	0	3	1.7	0.3	31	0	6	0	9.1	-0.4
SEU	113	0	2	1.2	-0.1	94	0	7	0	9.1	1.1
SIA	169	0	0	1.3	0.1	161	0	0	0	4.0	0.4
SLM	39	0	0	0.7	0.2	39	0	0	0	3.5	1.0
SQC	174	0	1	1.3	0.0	168	0	0	0	4.5	0.1
SSV	145	1	6	1.4	0.2	87	0	11	0	10.6	1.4
SWR	984	0	3	1.3	-0.2	960	0	4	0	4.3	0.9
TAP	350	0	1	1.3	-0.5	295	0	4	0	8.0	0.7
TCX	240	1	4	1.1	0.1	185	0	3	0	5.7	1.1
TFL	117	0	3	1.1	0.2	82	0	6	0	7.2	0.0
THA	31	0	3	1.1	0.4	26	0	4	0	4.7	0.0
THT	69	0	0	1.2	-0.4	67	0	0	0	4.2	0.7
TSC	506	1	5	1.5	-0.5	353	0	3	0	7.1	0.6
TUB	73	0	1	1.3	0.2	34	0	3	0	4.7	0.0
UAE	165	0	2	1.2	0.3	160	0	2	0	4.5	0.3
UAL	2455	0	6	1.2	-0.3	2388	0	5	0	4.4	0.8
UPS	1138	1	49	1.4	0.1	1100	0	50	0	7.1	0.3
USA	1322	0	2	1.0	-0.1	1254	0	2	0	4.3	0.8
VIR	1611	0	3	1.2	-0.1	1551	0	3	0	4.5	0.4
WOA	304	0	11	1.3	0.2	227	0	15	0	9.9	0.7
XLA	112	0	3	1.3	-0.2	101	0	3	0	6.0	-0.1
YSS	35	3	11	1.4	0.3	35	0	9	0	7.7	0.9

		TEMPERATURE				WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
EU	31441	0	19	1.2	0.2	31441	0	19	0	4.1	0.3

		TEMPERATURE				WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
N	464	1	5	2.2	0.2	275	0	7	0	9.5	1.1
US ACARS	26212	0	34	1.3	0.2	26211	0	30	0	4.8	0.1

TABLE 10

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: EXETER
MONTH: July 2005

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from selected radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from UKMO global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:100 hPa.
Element monitored		:GEOPOTENTIAL HEIGHT in metres
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:SD	:SD of difference of observations from background values at level shown excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.1

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
DBBH	12	Z	100	16	0	10.8	11.0	-2.3
DBLK	12	Z	100	8	0	14.9	21.3	15.3
EBUQ	12	Z	100	14	0	11.5	11.9	3.1
ELML7	00	Z	100	14	0	10.5	13.3	8.1
ELML7	12	Z	100	12	0	14.0	14.5	3.8
FQFL	00	Z	100	8	0	9.8	10.3	-3.1
FQFL	12	Z	100	9	0	10.2	16.1	-12.4
FQFM	00	Z	100	10	0	14.4	15.9	-6.6
FQFM	12	Z	100	11	0	22.5	22.9	4.4
HPII	00	Z	100	6	0	14.4	14.9	4.0
HPII	12	Z	100	11	0	14.8	19.3	12.5
KRPD	00	Z	100	7	0	9.4	12.3	7.9
KRPD	12	Z	100	5	0	6.8	7.0	-1.4
LDWR	00	Z	100	30	0	8.4	9.7	4.8
LDWR	12	Z	100	27	0	11.3	11.3	-0.6
OXVH2	00	Z	100	2	0	4.5	5.1	2.5
OXVH2	12	Z	100	1	0	0.0	19.0	19.0
OXYH2	00	Z	100	3	0	53.5	77.7	56.3
OXYH2	12	Z	100	2	0	47.0	92.8	80.0
SKUN	00	Z	100	7	0	18.7	30.5	24.1
SKUN	12	Z	100	6	0	12.3	29.8	27.2
V2UQ	00	Z	100	9	0	10.4	20.5	17.7
V2UQ	12	Z	100	9	0	10.1	15.0	11.1
V2XM	00	Z	100	2	0	13.0	33.6	31.0
V2XM	12	Z	100	3	0	20.3	31.7	24.3
WAAH	00	Z	100	10	0	9.7	40.6	39.4
WAAH	12	Z	100	14	0	23.3	46.6	40.4
WPKD	00	Z	100	14	0	14.1	14.7	4.2
WPKD	12	Z	100	12	0	7.5	11.6	8.8
ZCBP6	00	Z	100	11	0	11.3	37.5	35.7
ZCBP6	12	Z	100	15	0	8.4	29.0	27.7
03953	00	Z	100	29	0	9.0	15.3	12.3
03953	12	Z	100	30	0	16.5	18.0	7.2
04018	00	Z	100	30	0	10.8	14.4	9.5
04018	12	Z	100	30	0	15.4	17.1	7.4
04220	00	Z	100	22	0	25.6	36.7	26.2
04220	12	Z	100	28	0	9.7	20.4	17.9
04270	00	Z	100	22	0	15.0	16.7	7.2
04270	12	Z	100	26	0	14.4	15.5	5.8
04339	00	Z	100	30	0	10.9	24.2	21.7
04339	12	Z	100	28	0	11.4	19.4	15.7
04360	00	Z	100	29	0	14.5	23.2	18.1
04360	12	Z	100	27	0	15.1	24.0	18.6
08001	00	Z	100	22	0	6.6	15.7	14.3
08001	12	Z	100	22	0	8.1	12.9	10.1
08508	00	Z	100	27	0	10.8	15.7	11.4
08508	12	Z	100	29	0	8.9	9.5	3.5
08522	12	Z	100	9	0	11.4	11.5	-0.9
08594	12	Z	100	25	0	19.6	22.9	-11.8
71600	00	Z	100	30	0	11.3	11.4	-0.4
71600	12	Z	100	30	0	12.1	12.9	4.5
72201	00	Z	100	30	0	13.8	20.0	14.6
72201	12	Z	100	29	0	9.5	21.7	19.6
72402	00	Z	100	30	0	13.5	31.4	28.4
72402	12	Z	100	28	0	7.5	7.8	2.3
74494	00	Z	100	30	0	11.0	11.1	-1.5
74494	12	Z	100	30	0	9.3	19.9	-17.6
78016	00	Z	100	30	0	9.4	12.6	8.4
78016	12	Z	100	30	0	21.0	25.9	15.1

TABLE 11

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: EXETER
MONTH: July 2005

Monitoring procedures:

Period		:One calendar month.
Data monitored		:Reports from selected radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from UKMO global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:500 hPa.
Element monitored		:GEOPOTENTIAL HEIGHT in metres
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:SD	:SD of difference of observations from background values at level shown excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values at level shown excluding those with gross errors.
GROSS ERROR LIMITS	:Defined in Appendix I.1	

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
DBBH	12	Z	500	20	0	6.5	9.3	-6.6
DBLK	12	Z	500	8	0	9.1	11.6	7.3
EBUQ	12	Z	500	20	0	11.1	12.4	-5.4
ELML7	00	Z	500	14	0	8.0	8.1	-1.1
ELML7	12	Z	500	12	0	5.3	5.4	-1.2
FQFL	00	Z	500	10	0	3.4	8.9	-8.2
FQFL	12	Z	500	9	0	8.2	12.8	-9.8
FQFM	00	Z	500	11	0	7.8	11.5	-8.5
FQFM	12	Z	500	11	0	9.7	10.8	-4.9
HPII	00	Z	500	6	0	6.9	18.5	17.2
HPII	12	Z	500	12	0	15.3	23.0	17.2
KRPD	00	Z	500	7	0	8.7	8.7	-0.7
KRPD	12	Z	500	5	0	1.5	1.5	0.2
LDWR	00	Z	500	30	0	5.6	5.8	1.4
LDWR	12	Z	500	27	0	6.0	6.0	0.3
OXVH2	00	Z	500	2	0	3.0	6.7	6.0
OXVH2	12	Z	500	3	0	11.7	17.0	12.3
OXYH2	00	Z	500	2	1	0.5	19.5	19.5
OXYH2	12	Z	500	2	1	5.5	18.3	17.5
SKUN	00	Z	500	7	0	14.5	31.5	28.0
SKUN	12	Z	500	6	0	15.6	27.8	23.0
V2UQ	00	Z	500	9	0	4.5	8.6	7.3
V2UQ	12	Z	500	9	0	4.8	5.2	2.0
V2XM	00	Z	500	2	0	4.0	27.3	27.0
V2XM	12	Z	500	3	0	16.8	26.4	20.3
WAAH	00	Z	500	11	0	5.4	30.3	29.8
WAAH	12	Z	500	15	0	21.3	34.4	27.1
WPKD	00	Z	500	14	0	6.2	6.3	-0.9
WPKD	12	Z	500	12	0	9.2	9.3	1.1
ZCBP6	00	Z	500	11	0	7.7	33.9	33.0
ZCBP6	12	Z	500	15	0	6.5	29.1	28.4
03953	00	Z	500	30	0	5.6	5.8	1.6
03953	12	Z	500	30	0	12.1	12.3	2.5
04018	00	Z	500	30	0	9.6	11.2	5.8
04018	12	Z	500	30	0	9.1	11.3	6.6
04220	00	Z	500	22	0	10.7	15.5	11.3
04220	12	Z	500	28	0	6.3	10.4	8.3
04270	00	Z	500	22	0	8.5	10.7	6.5
04270	12	Z	500	26	0	7.8	8.3	2.6
04339	00	Z	500	30	0	8.5	15.7	13.2
04339	12	Z	500	28	0	6.3	10.6	8.6
04360	00	Z	500	29	0	10.3	13.8	9.2
04360	12	Z	500	27	0	13.9	15.0	5.8
08001	00	Z	500	29	0	7.8	9.3	5.1
08001	12	Z	500	28	0	6.1	6.2	1.1
08508	00	Z	500	29	0	5.9	6.3	-2.0
08508	12	Z	500	29	0	7.4	9.3	-5.7
08522	12	Z	500	9	0	4.6	10.5	-9.4
08594	12	Z	500	26	0	7.4	10.6	-7.7
71600	00	Z	500	30	0	5.7	5.7	0.5
71600	12	Z	500	30	0	7.1	7.9	3.6
72201	00	Z	500	30	0	5.4	6.1	-2.9
72201	12	Z	500	29	0	4.8	4.9	1.2
72402	00	Z	500	30	0	5.9	8.5	6.1
72402	12	Z	500	30	0	6.2	6.5	2.1
74494	00	Z	500	30	0	6.3	7.3	-3.7
74494	12	Z	500	30	0	6.5	6.6	-1.0
78016	00	Z	500	30	0	7.9	9.6	5.4
78016	12	Z	500	30	0	18.6	23.0	13.6

TABLE 12

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: EXETER
MONTH: July 2005

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from selected radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from UKMO global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:100 hPa.
Element monitored		:VECTOR WIND in m s^{-1}
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:UBIAS,VBIAS	:Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.2

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
DBBH	12	V	100	15	0	0	6.4	-1.4	-0.1
DBLK	12	V	100	8	0	0	2.4	0.5	0.0
EBUQ	12	V	100	14	0	0	5.0	0.1	1.0
ELML7	00	V	100	14	0	100	9.9	-0.2	2.7
ELML7	12	V	100	11	0	100	5.2	2.0	1.9
FQFL	00	V	100	6	0	0	3.7	0.9	1.1
FQFL	12	V	100	7	0	0	3.0	0.5	0.2
FQFM	00	V	100	10	0	0	3.7	-0.4	0.5
FQFM	12	V	100	12	0	0	4.7	0.8	1.4
HPII	00	V	100	7	0	0	3.0	-0.4	0.0
HPII	12	V	100	11	0	0	4.5	0.3	0.3
KRPD	00	V	100	4	0	0	4.5	-1.4	-2.3
KRPD	12	V	100	4	0	0	2.1	-0.3	0.9
LDWR	00	V	100	30	0	0	2.2	0.1	-0.4
LDWR	12	V	100	27	0	0	1.8	-0.2	0.0
OXVH2	00	V	100	1	0	0	2.3	0.3	2.3
OXYH2	00	V	100	2	0	0	4.5	3.3	0.3
OXYH2	12	V	100	1	0	0	2.9	2.9	0.6
SKUN	00	V	100	7	0	0	4.3	0.6	-2.3
SKUN	12	V	100	6	0	0	3.5	2.1	0.1
V2UQ	00	V	100	9	0	0	4.2	0.0	1.4
V2UQ	12	V	100	9	0	0	4.2	1.9	0.6
V2XM	00	V	100	2	0	0	7.6	5.5	1.9
V2XM	12	V	100	2	0	0	3.3	-1.9	-2.2
WAAH	00	V	100	10	0	0	2.9	-0.9	0.2
WAAH	12	V	100	14	0	0	4.8	1.2	-0.4
WPKD	00	V	100	14	0	0	5.4	0.6	-0.8
WPKD	12	V	100	12	0	0	3.4	-1.7	0.2
ZCBP6	00	V	100	10	0	0	1.9	0.1	-0.4
ZCBP6	12	V	100	12	0	0	4.1	0.3	0.1
03953	00	V	100	29	0	0	2.6	0.2	0.0
03953	12	V	100	30	0	0	2.4	0.2	0.3
04018	00	V	100	29	0	0	2.3	-0.1	0.0
04018	12	V	100	29	0	0	2.9	0.2	-0.4
04220	00	V	100	22	0	0	3.4	-0.6	0.2
04220	12	V	100	28	0	0	3.1	-0.2	-0.7
04270	00	V	100	22	0	0	4.0	0.3	0.1
04270	12	V	100	26	0	0	3.5	-0.4	0.2
04339	00	V	100	29	0	0	4.7	-0.2	1.2
04339	12	V	100	24	0	0	4.8	1.3	0.3
04360	00	V	100	28	0	0	5.1	-0.7	0.7
04360	12	V	100	26	0	3	6.0	-1.3	-0.4
08001	00	V	100	20	0	5	8.8	-3.2	-3.0
08001	12	V	100	22	0	4	8.4	-5.8	-3.5
08508	00	V	100	17	0	0	3.2	-0.6	1.1
08508	12	V	100	15	0	0	3.4	1.5	1.3
08522	12	V	100	9	0	0	4.2	0.1	-0.2
08594	12	V	100	25	0	100	4.0	0.3	2.4
71600	00	V	100	30	0	0	2.7	0.5	0.0
71600	12	V	100	30	0	0	3.7	-0.3	-0.1
72201	00	V	100	30	0	0	3.2	0.4	-0.2
72201	12	V	100	29	0	0	2.7	0.1	-0.1
72402	00	V	100	30	0	0	3.9	-0.1	0.1
72402	12	V	100	28	0	0	3.4	-0.8	0.0
74494	00	V	100	29	0	100	2.8	0.7	0.4
74494	12	V	100	29	0	100	2.4	0.3	0.2
78016	00	V	100	29	0	0	4.5	-0.9	0.2
78016	12	V	100	30	0	0	4.6	0.5	-0.6

TABLE 13

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: EXETER
MONTH: July 2005

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from selected radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from UKMO global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:500 hPa.
Element monitored		:VECTOR WIND in m s^{-1}
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:UBIAS,VBIAS:	Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.
GROSS ERROR LIMITS	:Defined in Appendix I.2	

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
DBBH	12	V	500	16	0	0	6.1	1.5	-2.5
DBLK	12	V	500	8	0	0	3.3	-1.4	0.6
EBUQ	12	V	500	18	0	5	6.0	-0.7	0.3
ELML7	00	V	500	14	0	100	5.7	0.8	0.9
ELML7	12	V	500	12	0	100	6.8	3.4	3.5
FQFL	00	V	500	9	0	0	4.5	-0.6	0.9
FQFL	12	V	500	8	0	0	4.0	0.8	-0.9
FQFM	00	V	500	11	0	0	3.3	-1.0	0.7
FQFM	12	V	500	12	0	0	3.7	-0.4	-0.7
HPII	00	V	500	7	0	0	3.6	-0.7	-0.4
HPII	12	V	500	12	0	0	2.9	-0.5	0.5
KRPD	00	V	500	4	0	0	4.0	0.4	-0.2
KRPD	12	V	500	4	0	0	2.2	0.5	-0.7
LDWR	00	V	500	30	0	0	3.2	0.0	-0.1
LDWR	12	V	500	27	0	0	2.7	-0.2	0.0
OXVH2	00	V	500	1	0	0	8.4	1.9	8.2
OXVH2	12	V	500	1	0	0	1.9	1.6	1.1
OXYH2	00	V	500	2	0	0	5.6	-1.6	3.7
OXYH2	12	V	500	2	0	0	3.5	2.2	1.7
SKUN	00	V	500	7	0	0	5.4	1.3	-0.4
SKUN	12	V	500	6	0	0	3.3	1.6	0.8
V2UQ	00	V	500	9	0	0	2.5	0.0	1.3
V2UQ	12	V	500	9	0	0	2.6	-0.2	-0.9
V2XM	00	V	500	2	0	0	9.3	-4.5	-6.3
V2XM	12	V	500	2	0	0	1.9	1.4	-0.5
WAAH	00	V	500	11	0	0	2.8	0.1	-0.7
WAAH	12	V	500	15	0	0	3.9	-1.2	0.0
WPKD	00	V	500	14	0	0	3.7	1.1	-0.4
WPKD	12	V	500	12	0	0	3.5	0.0	-0.8
ZCBP6	00	V	500	11	0	0	3.3	-0.4	-1.3
ZCBP6	12	V	500	11	0	0	2.7	-0.2	-0.2
03953	00	V	500	30	0	0	4.0	0.4	-0.3
03953	12	V	500	29	0	0	2.7	-0.3	0.6
04018	00	V	500	30	0	0	4.3	-0.6	-0.4
04018	12	V	500	30	0	0	3.5	0.1	0.0
04220	00	V	500	22	0	0	3.0	-0.6	-1.3
04220	12	V	500	28	0	0	4.3	0.0	-1.3
04270	00	V	500	22	0	4	6.1	1.4	0.2
04270	12	V	500	26	0	0	4.5	-0.6	-0.7
04339	00	V	500	29	0	0	5.0	-1.4	0.8
04339	12	V	500	28	0	0	5.0	0.1	0.6
04360	00	V	500	25	0	0	5.5	-0.8	0.4
04360	12	V	500	27	0	0	5.1	0.4	0.5
08001	00	V	500	28	0	0	5.5	-1.8	-0.3
08001	12	V	500	25	0	8	8.2	-4.5	-3.1
08508	00	V	500	18	0	0	2.6	-0.5	0.1
08508	12	V	500	15	0	0	2.7	-0.5	-1.3
08522	12	V	500	9	0	0	2.3	0.0	-0.6
08594	12	V	500	26	0	0	4.8	0.7	2.5
71600	00	V	500	29	0	0	3.5	0.4	0.2
71600	12	V	500	30	0	0	3.5	0.9	0.7
72201	00	V	500	30	0	0	3.0	0.2	-0.7
72201	12	V	500	29	0	0	2.2	-0.4	-0.4
72402	00	V	500	30	0	0	2.7	-0.1	0.0
72402	12	V	500	30	0	0	2.9	0.1	-0.3
74494	00	V	500	30	0	0	2.9	-0.2	0.0
74494	12	V	500	28	0	3	5.2	1.0	0.1
78016	00	V	500	30	0	0	4.0	-1.5	0.3
78016	12	V	500	30	0	0	3.5	-0.2	-0.1

APPENDIX I

1. The gross error limits for observation minus background differences of geopotential height in Tables 5, 10 and 11 are:-

Level (hPa)	Geopotential height (metres)
1000	100
850	100
700	100
500	150
400	175
300	200
250	225
200	250
150	275
100	300
70	375
50	400
30	450

The weighted RMS values used in Table 5,10 and 11 are calculated using the following weights:-

Level (hPa)	Weight
1000	3.70
850	3.40
700	2.90
500	2.20
400	1.90
300	1.60
250	1.50
200	1.37
150	1.19
100	1.00
70	0.87
50	0.80
30	0.64

2. The gross error limits for observation minus background differences of windspeed in Tables 6,12 and 13 are:-

Level (hPa)	Windspeed m s^{-1}
1000	35
850	35
700	40
500	45
400	50
300	60
250	60
200	50
150	50
100	45